THE BUILDER

Incorporating

ARCHITECTURE & THE BRITISH ARCHITECT

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THIS WEEK'S NEWS

MR. ALEXANDER STEELE, D.A. (Edin.), A.R.I.B.A., has been appointed to the post of Senior Depute City Architect for Edinburgh. p. 542

THE FOURTH ARTICLE in the series on "Research Applied to Current Building" by Mr. Dex Harrison appears on p. 544

AN ANALYSIS of some factors contributing to higher building costs in relation to wages and materials costs is given by a correspondent. p. 557

FURTHER DECISIONS in regard to steel distribution are contained in Circular 39/52 issued by the Minister of Housing and Local Government. p. 564

NON-TRADITIONAL HOUSING

THE Minister of Housing and Local Government in his circular 28/52* emphasises the necessity for local authorities to build more non-traditional as well as traditional houses, and to consider these for their 1952 programme. He points out that these houses take 50 per cent. less man-hours on the site and four-fifths of the time to complete.

The Minister proposes to agree with the firms on prices for each type in each region, so as to save time. He states that these proved non-traditional methods provide thoroughly satisfactory houses at prices fully competitive with traditional methods and, given judicious and careful layout, of not less satisfying appearance. The circular says that most of the established types can now be had in a variety of designs and include semi-detached houses, terraces of various lengths, two-storey flats and single-storey dwellings for old people. He states that anything the authorities may do now in this direction will be taken fully into account when increases in programme are being considered.

The Minister does not give the proportion of these houses to the whole of the housing programme, but he does consider that they will ease the strain of special housing needs.

We cannot help feeling that this is an extremely important document, and that very careful consideration should be given to it by the architectural profession and the building industry. We are pleased the Minister has laid stress on judicious and careful layout. It would be unfair for these houses to have less thought put into their siting and setting than traditional types, and it is hoped that great care will be taken in this direction.

The industry is bound to be concerned when anything which is not traditional is mentioned. Even when a new plan is evolved, if it is not in accordance with what has gone before it comes in for serious criticism. In the same way, non-traditional houses have had their share of criticism and opposition, mostly on their appearance but sometimes in not being, perhaps, as durable as well-tried traditional building. We have, therefore, to be satisfied that these houses which carry the 60-years' loan sanction do not fall short in any respect of the traditional house.

* Ministry of Housing and Local Government Circular 28/52 (published in *The Builder*, March 14, 1952.)

BUILDING LICENSING

A law case—Claridge and Hall Bros. *v.* Fisher—tried in the Queen's Bench Division on March 21 last* concerned a house built by the plaintiffs for the defendant under a licence for £1,405, the plaintiffs rendering an account for £1,865 when the house was completed. The plaintiffs sued for a balance of £460 and the defendant pleaded that it would be illegal for him to pay more than the amount of the licence. The Judge said that spending over the licensed amount was a breach of Regulation 56A, and payment of the balance of £460 could not be enforced in the Courts. His Lordship, however, gave judgment for the plaintiffs for £137 and costs, holding that some items in the plaintiffs' account were furnishings rather than integral parts of the building and so did not need the protection of a licence. Other items were also allowed, and it is these items which show the need for a revision of Regulation 56A.

The Regulation requires a licence, amongst other things, for "any other fixed works of construction," and the Judge allowed the plaintiffs the cost of a front boundary wall, concrete runways to the garage and paths. Increased labour costs were also allowed. On the other hand, the opinion of the Ministry of Works is that it is only garden work which does not involve fixed work of construction for which a licence is not required. Increased labour costs, in the opinion of the Ministry, require a licence.

This difference of opinion between the Court and the Ministry administering the Regulation indicates an uncertainty which is not fair to a professional man or a contractor. Both are entitled to know what is licensable and what is not licensable, and it should not require an action at law to settle the point. If such a course is the only way available, then, to the ordinary intelligence, the cure is a revision of the Regulation. Everyone is ready to comply with the law but one must know what is the law, especially as it is sometimes said that ignorance of the law is no defence.

Building licensing is likely to remain for some considerable time, and it is unreasonable that the present uncertainty should continue. If this means amending the Regulation, then steps should be taken to make clear the exact meaning of "any other fixed works of construction," or alternatively the Ministry should accept the Court's interpretation of the Regulation and indicate to the building industry that they have done so.

* Reported in *The Builder*, March 28.

NOTES & NEWS

THE A.A. RECEPTION

THE ARCHITECTURAL ASSOCIATION'S annual reception, which was held on April 3, fully lived up to its reputation of providing a wide variety of stimulating entertainment. Once again over 1,000 members and guests crowded the rooms and thronged the corridors, and gave the President and Mrs. Chitty a busy time receiving them.

The first thing to greet the eye on arrival was an exhibition of lithographs by Picasso and posters by Toulouse-Lautrec, lent by the Hanover Gallery, which lined the ground-floor gallery. Paintings from the Contemporary Art Society were displayed in the dining-room, and a selection of early English watercolours, from the collection of Mr. P. J. Westwood, were on view in the front members' room. Current work by students of the A.A. School and examples of industrial design by students of the Royal College of Art were to be found on the second floor, and a collection of Western books on Eastern architecture had been assembled in the library.

Elsewhere, an Architectural Quiz provided more active entertainment, and tucked away in the top-floor studio the A.A. Dramatic Society staged no fewer than three performances of "The Mock Doctor," a farce newly translated from Molière, while in the basement there was dancing to Lou Preager's Ambassadors' Band. As in other years, however, the exhibitions and entertainments provided tell only a part of the story—the most valuable feature of these occasions is, for most, the opportunities they give for renewing old acquaintances and meeting the people one often wishes to see but somehow doesn't find the opportunity to meet at other times.

ELY CATHEDRAL

ELY CATHEDRAL must now be added to the list of our cathedrals in urgent need of repair. An examination of the oak beams of the lantern, and the timbers supporting it, which surmounts the famous octagon, has disclosed serious deterioration, primarily as a result of the attacks of the death-watch beetle. The lantern is built entirely of wood, sheathed externally in lead, and its scale may be judged from the size of its eight great vertical angle posts, each of which measures 63 ft. by 3 ft. 4 in. by 2 ft. 8 in.

The restoration work that must be undertaken includes repairs to the roofs of nave and choir as well as to the lantern. The cost is estimated at £60,000, and the Dean has decided to open a restoration fund, for which a public appeal is to be made.

Mr. S. E. Dykes Bower, F.S.A., F.R.I.B.A., surveyor of the fabric of Westminster Abbey, will be the consulting architect for the restoration. The survey of the lantern and octagon ceiling has been undertaken by Mr. W. F. Haslop, of Messrs. Rattee and Kett, Ltd., of Cambridge.

THE SOUTH PORCH, HOPE, DERBYSHIRE.
From a pencil drawing by Edgar Gardham, FRIBA.

HISTORY IN STONE

THE Ministry of Works has made available for purchasers of the twelve-monthly season tickets to ancient monuments an illustrated brochure "The History of Britain in Stone," which gives particulars and pictures of the principal places in England, Scotland and Wales that can be visited under the scheme without extra charge. The places are listed by counties.

Tourists and others can buy for £1 one of these season tickets, which entitle two people to visit some 500 ancient monuments, palaces and historic buildings in the Ministry's charge as often as the holder wishes during the twelve months from the date of purchase. Tickets from the Ministry of Works (A.S. 22), Lambeth Bridge House, London, S.E.1; or, in Scotland from the Ministry's headquarters at 122, George-street, Edinburgh; or from travel agencies.

EDINBURGH APPOINTMENTS

MR. ALEXANDER STEELE, D.A.(Edin.), A.R.I.B.A., has been appointed to the post of Senior Depute City Architect for Edinburgh at a salary of £2,000 a year. Since 1948 Mr. Steele, who is 42, has been architect to the Birmingham education committee. His appointment follows a review of the arrangements to be made arising out of the retirement next year of the present City Architect, Mr. A. G. Forgie.

MR. THOMAS TUNSTALL HEWITSON, A.R.I.B.A., A.M.T.P.I., has been appointed Edinburgh's Town Planning Officer at a salary of £1,700 a year. Mr. Hewitson, who was formerly depute town planning officer, was previously on the planning staff of the L.C.C., and took a prominent part in the reconstruction of London's East End.

CRAWLEY CHIEF ARCHITECT

MR. HAMILTON STUART HOWGRAVE-Graham, Dip. Arch. (Rand), A.R.I.B.A., A.M.T.P.I., senior architect on the staff of the Crawley New Town Development Corporation since 1948, has been appointed chief architect in succession to Mr. A. G. Sheppard Fidler, F.R.I.B.A., who is leaving Crawley shortly to take up the appointment of city architect of Birmingham.

DESIGN FOR LIMITED LIFE

A SUPPER of the Architecture Club was held at Chez Auguste, Soho, on Wednesday, April 2, followed by a debate on the proposition "that no building should now be designed to last more than a lifetime." Viscount Esher presided. The debate was opened by Mr. Robert Furneaux Jordan, F.R.I.B.A., and Professor A. E. Richardson, R.A., F.R.I.B.A., and was continued by the Rt. Hon. David Eccles, M.P. Sir Lancelot Keay, Miss Jocelyn Adburgham, Mr. H. P. Cart de Lafontaine, Mr. Wells-Coates, Mr. S. E. T. Cusdin, Mr. E. M. Joseph, Mr. O. P. Milne, Mr. Peter Shepheard and Mr. Ralph Tubbs.

CITY ARCHITECTS' SOCIETY ELECTIONS

AT THE RECENT annual general meeting of the City and Borough Architects' Society held at the headquarters of the R.I.B.A., the following officers were re-elected: President, Leonard C. Howitt, B.Arch., Dip.T.P., D.P.A., F.R.I.B.A., M.T.P.I.; Vice-president, C. C. Shaw, B.Arch., F.R.I.B.A.; Hon. secretary, Johnson Blackett, F.R.I.B.A.; Asst. hon. secretary, M. H. Forward, F.R.I.B.A., F.R.I.C.S.; Hon. treasurer, G. Kenyon, Dip.Arch., Dip.T.P., F.R.I.B.A., M.T.P.I.

HEALTH CONGRESS, MARGATE

SEVERAL INTERESTING papers on various aspects of architecture and planning are to be given at the health congress of the Royal Sanitary Institute which takes place at Margate between April 22 and 25. Mr. Anthony M. Chitty, F.R.I.B.A., A.M.T.P.I., will preside over the Engineering and Architecture Section, members of which will hear Brigadier J. D. Welch speak on "Research into the Organisation and Design of Hospital Out-Patient Departments," and Mr. B. L. Stephenson, B.Sc., A.M.I.C.E., on "Rural Sewerage."

In the Housing and Town Planning Section, which will be presided over by Mr. E. A. Ford, O.B.E., M.I.C.E. (president, Town Planning Institute), Mr. James W. R. Adams, O.B.E., PP.T.P.I., F.I.L.A., will deal with "Physical Planning and the Housing Drive," and Miss Helen Alford, B.A., F.R.I.C.S., will speak about "The Landlord and the Tenant." Later in the proceedings Mr. A. Armes, a senior sanitary inspector, will talk on housing matters generally and rural housing in particular.

MR. MONTGOMERY'S ESTATE

MR. HENRY GREVILLE MONTGOMERY, J.P., Hon. A.R.I.B.A., for many years director of the Building Exhibition, left estate valued at £56,122 (duty paid, £18,576).

RESEARCH ON THE HOME

DOMUS JUS, the European Institute for Research on the Home, is the title of an international organisation recently established "to make a study of the most serious problem of the day: the provision of a decent home for everybody." The institute, which has been founded by an Italian, Dr. Carlo Teodori, who has been working towards the evolution of the problem for 20 years, is stated to be already well established in France, Germany and Italy.

Now, according to a letter received, the aim is to establish a branch in this country for which purpose the organising committee are anxious to find "some 20 English people distinguished in the building trade, in services of any kind and profession, who could form themselves into an advisory committee for the United Kingdom." It is hoped to carry out the first investigation by the organisation this year.

PROFESSIONAL ANNOUNCEMENT

MESSRS. A. H. DAVIS AND PARTNER, chartered quantity surveyors, have transferred their head office from 107, New Bridge-street, Newcastle-on-Tyne, to Osborne House, 28, Osborne-road, Newcastle-on-Tyne, 2. Tel.: Jesmond 1776.

COMING EVENTS

TUESDAY, APRIL 15

INCORPORATED INSTITUTE OF BRITISH DECORATORS.—Brains trust on the problems of a painter and decorator. Royal Society of Arts, John Adam-street, W.C.2. 6.30 p.m.

WEDNESDAY, APRIL 16

R.I.B.A.—Exhibition of premiated and commended designs in the Golden Lane housing scheme competition. 66, Portland-place, W.1. 10 a.m.–7 p.m. (Saturday, 10 a.m.–5 p.m.). Continuing open until April 19.

R.I.C.S.—Discussion on "Can the Standard Method of Measurement be Improved?" 12, Great George-street, S.W.1. 6 p.m.

THURSDAY, APRIL 17

SOCIETY OF CHEMICAL INDUSTRY.—Conference on the proceedings of the Building Research Congress. 11, Upper Belgrave-street, S.W.1. 6 p.m.

SATURDAY, APRIL 19

INSTITUTE OF CLERKS OF WORKS OF GREAT BRITAIN INCORPORATED.—Annual dinner. Church House Restaurant, Great Smith-street, Westminster. 6 p.m.

FROM "THE BUILDER" OF 1852

Saturday, April 10, 1852

THE ROYAL MEDAL of the Institute of Architects has been awarded to M. Leo von Klenze, Architect to the King of Bavaria, and founder of the present school of architecture at Munich.

THE ROYAL MILE, EDINBURGH

TENDERS have now been invited by the City of Edinburgh for the reconstruction of two of Edinburgh's historic buildings, Bible Land and Shoemakers Land; Mr. Robert Hurd's plans for the Canongate reconstruction having been approved by the housing committee. In his report Mr. Hurd points out that the late Mr. E. J. MacRae's report on the Royal Mile recommended that the frontage of the two buildings should be restored, but that an open gap should be left by demolishing and not rebuilding property in between.

Mr. Hurd's plan for the construction of new buildings will give one continuous frontage. The new block to be built between will provide 27 houses of various sizes.

No houses will be situated on the ground floor, but all will be within the three-storeys above the eight shops (which are proposed for the street level), except in Shoemakers Land where the windows of a higher floor already exist, and in Bible Land where the two attic flats are proposed.

Access to the houses has been planned so that each stair serves the maximum of houses possible. In the new buildings the new stairs are contained in rubble-built towers projecting boldly from the north front, and in the two historic buildings the existing stone stair will be utilised in Bible Land, while in Shoemakers Land the new stair has been placed in relation to the existing stair windows.

Much thought has been given to the design of shops for the ground floors partly in order to ensure harmonious scale with sufficient display space and lighting, and partly to evolve some means of controlling the area and size of shop lettering on the frontages. Walls will be of either stone rubble, or brick harled with colour mix. For certain features such as the arcade and window surrounds, stone ashlar has been suggested with cast stone as an alternative.

An arcade will be created by setting back the shop fronts and keeping the house fronts out to the normal line.

THE ROYAL MILE, EDINBURGH. Seen above are Mr. Robert Hurd's designs for reconstructing a portion of the "Royal Mile" above the Tollbooth. The upper drawing is the elevation to the High Street, and the lower the north elevation towards Princes-street. *(See above.)*

Research Applied to Current Building

4—Materials and Methods other than Steel or Timber

By DEX HARRISON, Dipl.Arch., ARIBA, AMTPI

BESIDES steel and timber, only the non-ferrous metals have any great value for tensional use in building, and these are in equally short supply. Together with plastics they may have a fringe effect on the position but can have little more at the present time.

It must be remembered that Canada is our chief source of supply of aluminium at present, and that the metal, therefore, is a consumer of dollars. Though still regarded as a somewhat rare material, world production is rising at the very rapid rate of 60,000 tons per year, and Commonwealth production, including production from non-dollar sources, is expected shortly to be doubled. On the other hand the price trend has been constantly downward relative to all other materials, as is shown by the graph in Fig. 9. Aluminium is at present hardly competitive with timber and steel in structures, although it will become ever more competitive as time goes on, and research and consideration of its merits should not be shelved. At the present time its correct use is not in the imitation of structural steel members, but in forms where its qualities of extrusion make it unique.

LOAD-BEARING STRUCTURES

There remains the possibility of reverting to the utmost extent to load-bearing structures. In buildings of up to three or even four storeys of modest spans, the fully framed structure in present circumstances must be regarded as a luxury to be eschewed and it will usually be possible to substitute brickwork in compression for steel or reinforced concrete stanchions. After all, most buildings were so built until 30 years ago, but we have got out of the habit of utilising the innate compressive strength of brickwork and masonry and even got into the habit of using these materials under conditions where they are taking no stress whatever. We ourselves have used (Fig. 10) stone columns of 10 in. dia. to support an overhead framed structure, and they proved to be little more expensive and very much more decorative than equivalent reinforced concrete columns would have been. Another architect to our knowledge has used blue brick piers to support a three-storey school, in place of structural framing.

With the present desire for wide window openings and narrow piers, load-bearing structures of this kind should be calculated in the same manner as for a framed building, and care taken that excessive bending stresses are not imposed on these load-bearing elements, which are very weak in bending because of their joints. It may be necessary (and will usually be desirable) to insert some reinforcement to resist such stresses. Experience in such work will show what economies over and above accepted rule-of-thumb bye-law standards are to be obtained, but we would expect that the need for waivers will frequently arise if this sort of structure is to be built economically. It would be folly to withhold such waivers where it can be shown that the strength of the structure has been fully calculated. The sort of waiver we have in mind may be illustrated by the possibility of treating portions of wall in between calculated piers as unstressed panels, and therefore maintaining them at a minimum thickness.

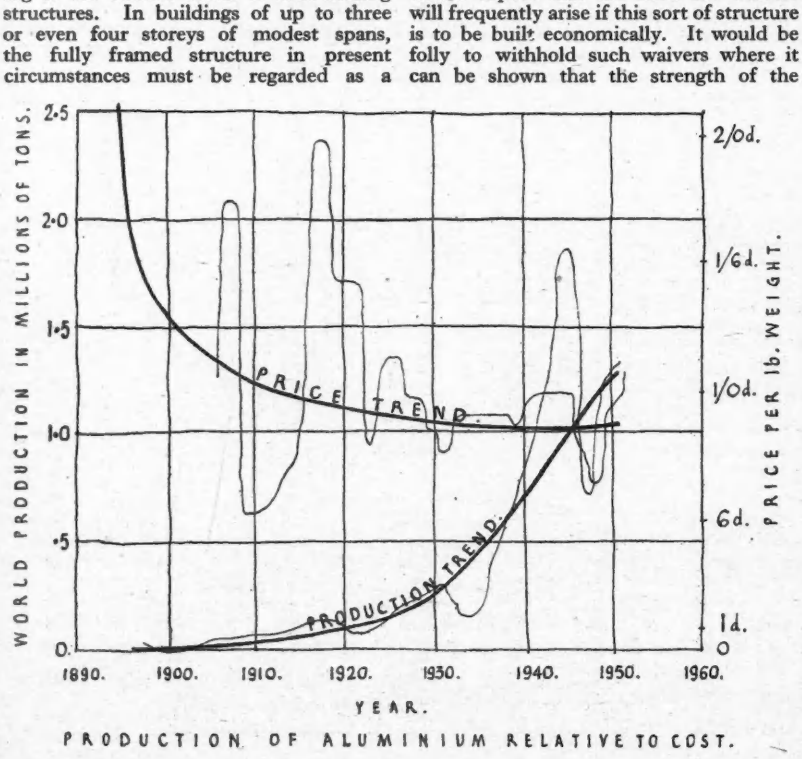


Fig. 9.—The graph shows the rapid and continuing rise in the world production of aluminium, and illustrates the downward price trend of this metal relative to all other materials.

PRECISE DESIGN

All economic structure springs from precise design and in the reduction of building dead loads, especially on elements which are in tension. Dead loads on roofs and floors need to be kept to the absolute minimum and full use must be made of the many types of lightweight materials at present available. We are in need of the production of stiff lightweight slabs of the lightweight concrete/woodwool/strawboard type which are capable of considerable self spans. Insufficient attention has been given to this problem and there is substantial scope for improvement. Nor is it essential practice to load-up spans with heavy deadweight screeds; the materials mentioned above provide their own insulation and the waterproof covering can be laid more or less directly on them. It may be necessary, for instance, to forgo the luxury of embedded conduit to help in the cutting out of screeds; the roof itself could be set at a slight slope to ensure an adquate rain-shed. An example of such construction is shown in Fig. 11. The new codes allow the use of a super load as low as 15 lb. per sq. ft. where the roof is designed to be inaccessible except for maintenance purposes. In fact, the Code of Functional Requirements of Buildings (Loading) is a most important document and should be in the hands of everyone concerned. We found ourselves referring to a 1952 diary recently in which most of the figures given were already out of date, and one cannot overstress the point that all out-dated textbooks should be discarded.

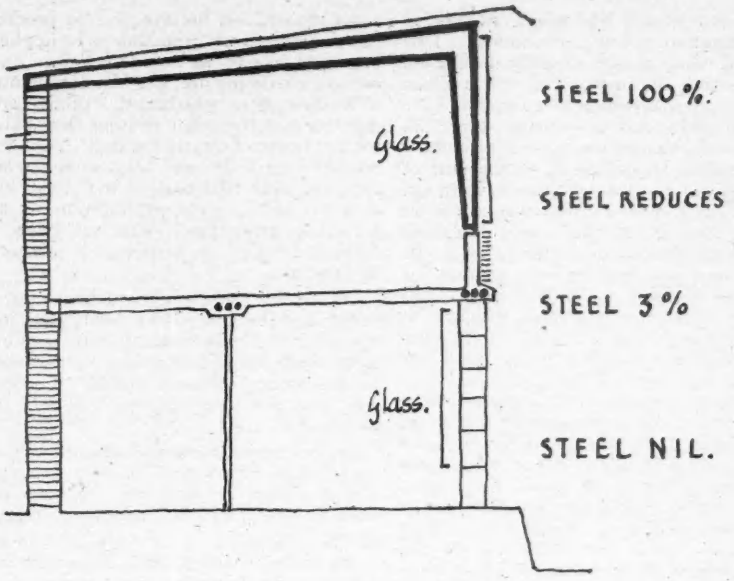
Numerous subsidiary building items are heavy users of iron and steel, and all should be carefully reviewed to see whether substitution can be made. The heating system is a particularly heavy user. Here, again, welding can result in substantial economy, and the finding of a suitable substitute for metal ductwork is a crying need. The electrical system can make its contribution with tough rubber sheathing. Rainwater goods can be in asbestos. In many cases it is not really necessary to use gutters at all if suitable eaves overhangs are provided, a more common practice in the States than over here. Hardwoods can, of course, be used in lieu of metal trim and for windows, and will normally show a substantial saving in cost for all purpose-made work.

CONCLUSIONS

Everything I have said so far is a mere trifling with the problem.

There are far, far bigger savings to be made.

The steel shortage springs from a coal shortage, and we are wasting coal in prodigal quantities all the time. When there is a shortage the first thing to be done



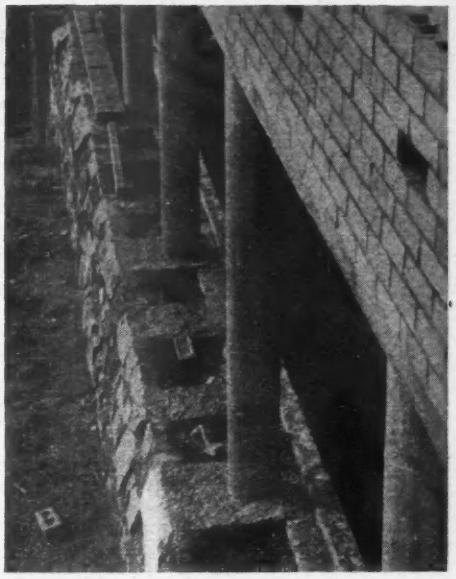


Fig. 10.—A school at Bailden, Yorkshire, illustrating the use of stone columns to support an overhead framed structure. The cost was little greater than that of equivalent reinforced concrete columns.

is to eliminate waste, and the best way of doing this is to cut it out at the roots, which is coal and, therefore, steel. Two methods are open to us :

(1) to provide adequate heat insulation in buildings, and

(2) to use the most efficient heating appliances.

Heat insulation inevitably means a somewhat higher capital cost in the structure, and here we find that the economies, which are now being enforced at the expense of insulation, are bound in themselves to aggravate the shortage of coal.

Our method of burning coal in domestic open grates which have efficiencies of less than 10 per cent. when we can produce simple equipment to burn coal at efficiencies as high as 60 per cent. is national economic suicide and is resulting in a wastage of the order of 15,000,000 tons of coal per year. A quarter of this wasted coal would provide us with all the steel we could ever need.

The remedy is a very simple one. In the first instance, the production of all grates which fall below a prearranged standard of efficiency should be prohibited. Second, the Government should offer to instal, free of charge, new and efficient types of grate in all existing houses. A more drastic method would be to put a £5 tax per annum on all open fires.

All the grates in the country could be changed over for £200,000,000, a sum only half as much as last year's food subsidies and the saving in coal over five years would be sufficient to pay for this operation.

THE ARCHITECT'S RESPONSIBILITY

The architect is the fountain head for all these economies. In the first place they can only spring from his prior grasp of the problem. He, in turn, must collaborate to the full with his consultants if he is to achieve the results he instigates ; and, finally, full co-operation at a somewhat later stage must be made with the builder. It is true that tendering procedure does not always assist in the process, for the necessity of competitive tendering precludes any prior consultation with the builder and reduces the possibility of choosing the most suitable builder for the circumstances.

We must each consider our own position and ask ourselves what is the fullest extent of the co-operation which we can achieve ; for building economy, as one whole and not a series of self-contained parts, demands a united effort from all, from Governmental authority down to the individual working on the job. Since incentives are in the news, we might end by saying that the best reward to the industry for achieving economies would be to allow an equivalent increase in building.

(*Concluded*)

*** Previous articles in this series were : (1) Saving Steel (March 21) ; (2) Reinforced Concrete (March 28) ; and (3) Timber (April 4).

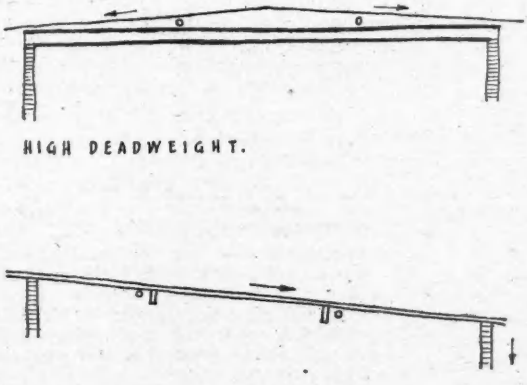


Fig. 11.—A roof designed with the object of reducing the dead load to the minimum.

LIVERPOOL ARCHITECTURAL SOCIETY

"Architecture at Low Ebb"

A BELIEF that we are passing through a period when architectural attainment was at a low ebb, was expressed by SIR LANCELOT KEAY, former Liverpool City Architect and Housing Director, when he spoke to the Liverpool Architectural Society recently as chairman of two New Town Corporations.

He added that no doubt there would be voices of protest against that statement. He pointed out that the development of new towns started with the erection of houses for the lower wage group. In some cases it was thought desirable to provide accommodation for operatives building the town. The result was that the more exciting problem of the town centre and the higher density population round it was postponed.

He did not ask or suggest that the new town centres should be mere reproductions of successful work of the earlier centuries, but he did suggest they should possess some quality in their design so that they might be looked upon with pride by future generations.

"Any attempt to repeat the vast and undesirable dormitory developments of the present century must be avoided at all costs," added Sir Lancelot.

Foiling Lead Thieves

To prevent possible loss by theft, the lead roof of Mendham Church, Suffolk, has been removed and replaced by a composition covering.

CORRESPONDENCE

THE INSTITUTE OF BUILDERS

To the Editor of *The Builder*

SIR,—I have followed with close interest the correspondence which resulted from your leading article on the part the Institute of Builders could and should play in the development of education in the building industry.

Like Mr. Norman Longley, writing in your last issue, I accept as an F.I.O.B. some measure of responsibility "for any short-comings it may have." But that is only part of the story. The Institute of Builders has a long history; it has notable achievements to its credit. But when the leading paper in the building industry, in pursuance of its campaign of letting a little fresh air into some of the building industry's cherished institutions, poses certain questions concerning the Institute's workings to the Council of the Institute, it is the Council's plain duty to consider these questions—and answer them. It may have considered them, but in spite of the many letters which followed your original leader and your very pointed reminder two months later, it has not answered them.

Brer Rabbit, we know, lay low and said nothing. That is hardly an attitude which a responsible body can afford to take to-day. If the Institute persists in saying nothing it lets its case go by default. On the other hand, of course, it may have a completely affirmative answer to your questions. In that case the "yes" should be given without further delay, so that the misgivings which exist in so many quarters may be dispelled.

R. R. COSTAIN.

Dolphin-square, S.W.1.

SELF-BUILD HOUSING

To the Editor of *The Builder*

SIR,—It is with great satisfaction that I note the interest taken by your paper, in the "Self-build" housing groups (Editorial, March 14). There are, however, several misunderstandings current about this movement which I would like to take this opportunity to clear up.

The main point at issue is your suggestion that the architectural standards of "self-build" houses would be below those which have lately been achieved by the planning authorities. I can assure you, Sir, and the building world at large, that this suggestion would definitely be incorrect if applied to the houses that this association intends to erect, for the greatest possible interest has been taken by our members in all aspects of the planning, design and layout of these houses. Their often expressed intention has been to have a house to be proud of; after spending two years' hard labour erecting it they do not wish to be saddled with an architectural monstrosity.

This brings me to the matters of competent architectural advice and of prefabrication. As the first active post-war association of its kind in the London area, we investigated many systems of building both traditional and prefabricated, finally deciding on a proprietary system which, realising our skill limitations, we judged to be most speedy and economical. This system, which is already fully developed, tested and approved, has since been adopted by many other associations in the London area, and is perhaps where we score most heavily over the Birmingham associations, all of which, to the best of my belief, rely on traditional methods. Where they redress this advantage is in having sympathetic and even enthusiastic local authorities to deal with, whereas we in London are fighting hard against the attitude of local authorities in districts outside the Metropolitan area, who control the only building land available to associations such as ours, all of whose members come from completely built-up areas.

The last point on which I would like to comment is on the suggested shortage of materials. This is a point which I do not think will affect either us or the industry to any great extent for even if all the difficulties of land plans and permission were overcome, I doubt if more than 50 houses would be completed, in the London area, this year, as the associations are in varying stages of construction, with only a few, of which we are one, ready to commence operations immediately. This staggering would be effective over the active period of the associations and would give the supply industry ample time to step up production to the 300,000 mark, which is the promised rate of building.

In closing I can only hope that the authorities will continue to take an enlightened view of these schemes, and that the London and suburban local councils will take the lead from the Birmingham and district councils, for our mutual benefit.

R. A. COLMAN, Chairman,
W. E. Cooter, Secretary,
Tenants Housing Co-Operative

2, Fountain Close,
Islip Manor, Northolt, Middx.

WAGES AND INFLATION

To the Editor of *The Builder*

SIR,—The correspondence which has been going on between Mr. Heumann and myself appears to have drifted from the original subject of "Wages and Inflation" to profits but, seeing that Mr. Heumann has now determined what he really means by "that profits are high in every industry," I will now try to convince him otherwise.

(1) The late Government nationalised a number of industries including coal, gas, electricity and transport. Does Mr. Heumann still maintain that these are making exorbitant profits, for if so, why have prices been allowed to be increased so many times since these industries became monopolies?

(2) It may be true that some companies in some industries make exorbitant profits, part of the time, but it is equally true that some industries sometimes make no profits, so probably that is the reason Mr. Heumann has dropped the important word "everywhere" which appeared in his first publication.

(3) With regard to his quotation from *The Economist*, the figures may to him appear colossal, especially when they are superimposed on his aversion to profits, but they are not as formidable as he implies or would like us to believe. Before one can get a true picture, he, Mr. Heumann, must first state whether the profits are gross or net and what relation they have to the amount of capital invested. Also his reference to a 29 per cent. increase on last year only tells part of the story, for it is possible for companies to have an increased gross profit and yet have a decreased net profit, so vicious is present-day taxation.

To be fair, it would have been much better had he first stated how much of the profits had been allocated to taxation, how much to depreciation, replacement of machinery, pension funds, bonuses, etc., and then the net amount paid in dividends.

(4) His insistence that increased wages are tied to rising costs is not true, as already stated, for have not wage awards been made without any relation to rising costs?

(5) Nobody asked Mr. Heumann to subscribe to increased production as a cure for capitalist malaise, whatever it means, nor was it implied. He was simply informed of what Labour ministers had said in the House of Commons, as a cure for inflation, so perhaps I had better remind him in case he misunderstood. On October 26, 1949 (Hansard) Sir Stafford Cripps said: "Unless we can all quickly produce more and get our costs down, we shall suffer a tragic fall in our standard of life accompanied by all the demoralising uncertainty of widespread unemployment."

V. SIMMONS.

27, Hampton-road,
Worcester Park, Surrey.

***This correspondence must now cease.—ED.

R.I.B.A. FORM OF CONTRACT

To the Editor of *The Builder*

SIR,—With reference to Mr. M. F. Clift's letter in your issue of April 4 concerning the practice of inserting in the Appendix to the R.I.B.A. form of contract a percentage limit of retention rather than a fixed amount, surely the answer would be to insert the percentage limit of retention as "10 per cent. of the contract sum," which in effect fixes the retention automatically upon signing the contract and yet avoids inserting in the bill of quantities a fixed sum of money?

E. D. SMITH [A.R.I.C.S.]

19, London-road,
Chelmsford, Essex.

American Library's New Industrial Section

The American Library has recently opened an industrial section, which includes American books, periodicals, government documents and other literature in the fields of technology, engineering, management, trade and agriculture. Books and other material can be borrowed by anyone in Great Britain and, where necessary, will be sent by post. The Library is open to the public, Monday to Friday, from 9 a.m. to 6 p.m. Communications should be addressed to the Industry Section, American Library, 41, Grosvenor-square, London, W.1.

THE ROYAL FESTIVAL HALL

The Relationship of its Design with Science

THAT "science can produce the facts, but that art must show us the way in which they can be used," is how DR. J. L. MARTIN, M.A., Ph.D., F.R.I.B.A., summed up his attitude to the relationship between science and art, in a paper on "Science and the Design of the Royal Festival Hall" which he read before the R.I.B.A. on March 18. It was through the direct influence of science that the design of the Royal Festival Hall made a radical departure from the general conceptions of form, he said.

Its site was alongside a noisy railway bridge, continued Dr. Martin, and the central problem was one of insulation against external noise. Noise was resisted by weight and mass. The enclosure of the auditorium was therefore no longer a question of thin skins or lightly suspended roof construction. It was a question of building a heavy barrier against sound penetration. As this influence from science had such a profound effect on the final design he went on to describe the scientific approach in some detail.

Tests to ascertain the sound intensities on the site itself were carried out by Mr. Peter Parkin of the Building Research Station in September, 1948. As a result of these tests Mr. Parkin finally recommended (in terms of concrete) a 12 in. outer skin, 12 in. of cavity and a 10 in. inner skin for the auditorium wall itself. The roof, which received the sound waves at grazing incidence only, could be reduced to two skins (6 in. and 4 in.) with a 2 ft. air space between. Wood wool inside the wall cavity and used as a lining to the inner leaf of the wall, and glass silk quilt in the cavity of the roof, gave some sound absorption in the cavity itself and some increase in insulation. A vital factor in the construction was the complete isolation and separation of the outer and inner skins.

CONSTRUCTIONAL NEEDS

The main constructional requirements for the auditorium itself were thus established on an entirely theoretical basis. These requirements were later tested out in a practical way by being built up into the form of an experimental room. This room was built on the site itself. It was a reproduction in miniature of the structure of the auditorium walls and roof, and gave the opportunity of measuring what was likely to happen in practice.

The interaction of science and architecture is very important at this point. From the outset the London County Council's main acoustic consultant, Mr. Hope Bagenal, had advised that a massive surrounding wall would be desirable in order to reduce the sound penetration of the auditorium itself. Although I believe that the scientists did for a moment think of suggesting a continuous vacuum—until they worked out the pressures—this idea of using mass proved to be the simplest idea in practice.

From a constructional point of view the main requirement in the Royal Festival Hall was a system which could satisfy the need to carry the massive auditorium box (weighing 25,000 tons) on comparatively slender and widely spaced columns so that the foyer under the auditorium could be as open as possible. The structure around this centre core consisted of floors and bridges joined to each other by staircases and forming a continuous flow of levels, again supported on columns without infilling walls except at the corners of the building, where batteries of escape stairs form solid blocks. From the æsthetic point of view there were many special requirements. For example, the separation of the side galleries from the main central block, by means of an open space, gave emphasis to the form of the central mass.

It was considered from the outset that reinforced concrete provided a particularly suitable form of construction. It allowed simple slab-like construction for the various promenades with the necessary cantilevering at staircase points. It also lent itself easily to the thickening out into continuous massive construction for the auditorium walls. Some hesitation was felt from the point of view of speed, and indeed some heavy concessions were made because of this. For instance, early ideas of using shell vaults and many opportunities for prestressing were abandoned. The simple homogeneous construction became composite at roof level, where bow-string girders avoided a great deal of strutting and shuttering and enabled a remarkable erection time to be achieved.

Theoretically, so far as the main structure is concerned, there are some interesting refinements that might have been considered if the time factor had not been so pressing. In theory at least, the structural isolation of the outer and inner skins is not so complete as it might be, particularly at roof level. So far as the Festival Hall is concerned this is not critical, as the train noises are of grazing incidence, but complete discontinuity of construction might have allowed greater resistance to aeroplane noise, even with thinner roof skins.

ACOUSTICS

The science of sound exclusion is clearly a major issue in the design of any concert hall in an urban area, and after some months of experience in the Royal Festival Hall we are beginning to realise just what an important contribution this inner quietness has made to the solution of the central problem—the acoustics of the auditorium itself. But while the problem of sound exclusion is an exact science capable of factual analysis, the scientific contribution to the subject of acoustics is recognised by scientists themselves to be incomplete. Mr. Parkin has said simply that science is a better basis than any other for the intelligent guesses that have to be made.

Dr. J. L. Martin, M.A., Ph.D. (Man'cr.), FRIBA.

For large concert halls the present-day requirement is for a capacity of 3,000 or more. As halls have increased in size orchestras have been reduced in numbers. Also as halls increase it is clear that it is difficult to keep reverberation time sufficiently long to maintain quality of tone.

It was felt, however, that several broad decisions could be made. The elimination of echo could be most readily achieved by a rectangular hall with a straight rear wall rather than by means of a fan-shaped hall (though this was based largely on experience and not on scientific knowledge). Suitable absorbents were required on the rear walls, and the angles of walls and ceilings. The rectangular shape was modified on the side walls close to the orchestra itself to deal with cross echoes. Fullness of tone could be gained by providing the longest possible reverberation time: this in itself required a maximum volume and a minimum of absorbent areas, but both these requirements in turn presented a risk of echo. The need for fullness of tone and at the same time definition also introduces an element of conflict. Fullness of tone through reverberation means a prolongation of sound obtained by a complexity of reflections. Definition results from a direct sound path from every instrument to every seat, and it is this requirement that gives rise to the raked seating of the orchestra and the raked seating of the audience. Definition can be built up by first reflections arriving at the listener within a specific period of time, but the reverberant sound arriving after this period, though desirable for musical tone, will hinder definition. This gives rise to a nice study in interaction which has yet to be pursued. It also gives rise (if you are a supporter of the reflector school of acoustics) to a suspended canopy over the orchestra for first reflections. This canopy will hang within a volume made large enough to give a long reverberation time.

Now it is quite clear that these basic requirements do not solve any artistic problems for the architect. They do not

lay down a final shape—indeed, about most shapes there are conflicting views and the architect himself must take some broad decisions. In the case of the Festival Hall the decision to adopt a rectangular plan form did not, of course, give rise to any artistic problem. The narrowing down at the throat to enclose the orchestra and to prevent lateral echoes can be satisfactorily handled. The raked floor of the orchestra and the auditorium, and the desirable slope of the ceiling can all be related to the plan shapes and can provide a cubic volume which is acceptable. It is also acceptable to hang within this volume the canopy over the orchestra and to treat this as an essential part of the design (although I must point out that, because it hangs, many people will persist in regarding it as an afterthought). All these things are generally acceptable, but the requirement to provide splayed walls from floor to ceiling on either side of the orchestra results, to say the least of it, in an awkward piece of solid geometry. I believe that there are here some gaps in scientific knowledge (there is certainly some scientific disagreement) which make the architect's problem difficult and which demand further study.

It seems to me that in all these matters the solution by the scientist who knows the facts is very often limited to one formal idea. The designer's contribution is to increase the range of formal solutions, and in doing this it may well be that he will stimulate new scientific advances. What is needed is a joint effort—"design research"—in which individuals can stimulate each other.

INTERNAL CLIMATE

There is one other aspect of building in which science can play a major part, and that is in creating what might be called the internal climate of the building. This is, of course, its lighting, its warmth, its air movement and humidity. I am not going to say a great deal about this so far as the Royal Festival Hall is concerned. In making this omission it is not because I disregard or disrespect the pioneering work of such men as Allen, Hopkinson or Bedford, or the many unnamed scientific workers who have contributed to the development of lighting or heating techniques.

The omission is made because, in fact, basic scientific data did not impinge on or influence the design of the hall to any appreciable extent, though, indeed, there are some conclusions to be drawn from this that are worth mentioning. The first is that the quality of light in an auditorium—as opposed to its quantity—seems to me as much a question of æsthetics as the quality of musical sound in acoustics; in fact, it is a question of art and not a science.

In saying this I am well aware that scientists themselves have moved away from the mere assessment of the quantity of illumination. It is an important step that they should now be studying questions of glare, brightness and comfort. But as Hopkinson has pointed out, the study of comfort is the study of whether there is a sensation of physiological pain, irritation or distraction. It is not a question of whether a person likes or dislikes an effect, but whether his senses are stimulated, titillated, stunned or merely rested.

This æsthetic factor is, of course, a vital one in a theatre or concert hall. For while it is true that a certain number of people are working—for example, the orchestra—and that good lighting may well affect the precision and speed of their playing, it is equally true that for the audience the lighting and the architecture are inseparably combined to create the mood, the feeling and the general atmosphere.

SCIENCE AND THE DESIGN

It is for this reason that lighting methods which may be efficient and desirable in some types of building—the classroom, for example—have limited applications in the auditorium. It may be necessary to have a fine illumination at the working level (the stage—in the centre of the drama), but in the area that surrounds this centre, shadow may be as important as light itself. This naturally leads to two distinct categories: the general lighting of the hall graded and controlled by dimmers and the lighting of the stage itself. In the auditorium of the Royal Festival Hall the soft changing light of the rippled ceiling, the lenses that give out brilliance, the small points of light in the fronts of the boxes that give liveliness and glitter, are all there for effect, and I do not think that science has played much part in this. For the purpose of record, however, it may be interesting to note that the auditorium lighting ranges from 8 to 9 ft. candles during intervals (and is set at 1 to 1.5 during the actual performance). A platform lighting of 18-25 ft. candles appears to be an acceptable level, and is obtained from 25 lanterns covering an area of 5,200 sq. ft. I should say that this stage lighting can be formed into a third system complete with spots, etc., when ballet is being performed.

As for that other element of climate, the internal atmosphere, its scientific aspects have not affected very greatly the design of the hall. It created a number of technical problems. To prevent sound transmission, each separate element of the plan (the auditorium, the foyer and restaurant, the meeting rooms) had to have its separate warming installation, but apart from the rippled ceiling of the auditorium, which to some extent was designed as a result of ventilation inlet problems, there is little visible effect. What is certain is that the technical requirements of ventilation are very complicated for a building of this kind, though they must be known in the initial sketch stages. It should be mentioned that science lent a hand in devising the baffles which absorb the sound from the air as it is drawn into the building, and also that the system of warming in winter and cooling in summer is associated with an important scientific experiment. Dr. Roxbee Cox, of the Ministry of Fuel and Power, designed a heat pump which was placed during the exhibition in an adjacent arch of the Hungerford Bridge, and which is connected up to the concert hall system. The heat pump conserves the latent heat from the water of the river Thames, and by building this up provides warmth which has already been used in experimental tests. During the summer it was used in reverse to provide some cooling for the auditorium.

Finally, it is worth noting that the "flora" which enrich the interior, by living in this internal climate are themselves kept alive by science, for they are an interesting example of "hydroponics." In order to avoid the problems of drainage these plants are placed in sealed pots, their roots embedded in a mixture of exfoliated mica and sand for anchorage. This mixture is charged with a year's supply of the necessary nitrogen, phosphates, potash and trace elements, additional nourishment being parcelled out from time to time in the form of a solution if this is found to be necessary for a particular plant.

At the beginning of this paper I stated, perhaps too briefly, that science could produce facts which might influence the form of art, but that these facts in themselves do not make that art. Perhaps I should add a further word of explanation. In considering the influence of science on the design of the Festival Hall, I hope that I have shown that an influence of this kind can be profound. It is at the very least the most dependable starting point that we possess. I hope that I have shown also that scientific influence in architecture is not limited to the engineering or structural aspect. In the Royal Festival Hall the requirements of sound insulation and acoustics outweigh in importance the structural considerations and actually condition them. Whilst engineering forms are likely to predominate in, for example, a factory, there are many other building forms where they may be, architecturally speaking, irrelevant. Buildings, like natural forms, fulfil many functions at one and the same time, and any one or several of these functions may be emphasised in the completed conception.

The architectural problem is to discover in all these conflicting pressures some spirit of order, of harmony and of coherence. Science is of great assistance in clarifying issues. To this extent it assists the designer in his problem.

I have described the way in which science impinges upon basic conception. But I hope I have made it clear that it leaves unsolved all the architectural problems. In a building like the Festival Hall the designer must still face the problems of ordering and controlling the internal spaces, of creating the sense of occasion, the right atmosphere for a large non-utilitarian building. The answers to these problems rest in an architectural world—a world of light, colour and form in which we have no guide, except our own senses and our feelings.

Criticism must assess the extent to which scientific knowledge has been used. But this cannot be used as a measuring rod for the finished work of architecture. It must go on to explore the language of the forms themselves.

April 1

Block A from south-east. On the right is the end of Block C. Facing bricks are sandfaced buffs built in lime mortar. Roof, gutters, r.w. pipes, canopy and window hoods are all of copper and the small windows have rolled copper drip cills.

FLATS FOR ELDERLY COUPLES, LIMES CLOSE, ARNOS GROVE,

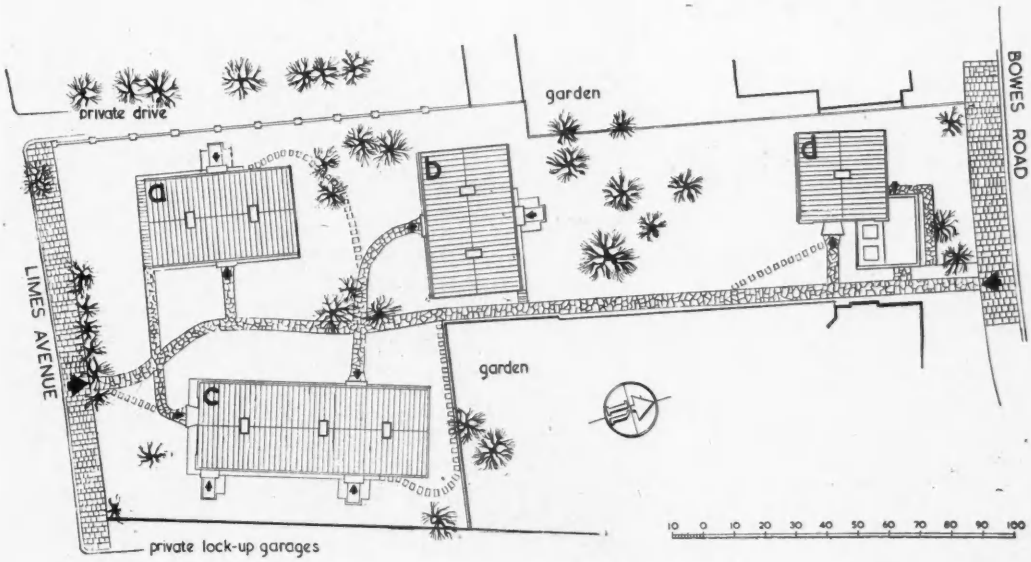
for the Southgate Borough Council

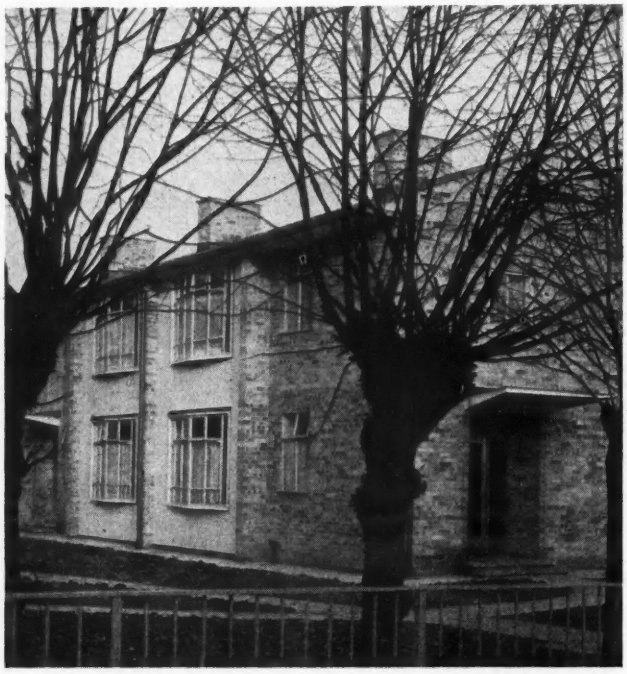
DAVID du R. ABERDEEN, FRIBA, ARCHITECT

J. S. HEATHCOTE, ARIBA, SENIOR ASSISTANT

THIS small group of dwellings for Southgate Borough Council, comprising 16 flats for elderly couples, has been planned on a site a little over half an acre in extent.

As a State-aided housing scheme, great economy in planning and design was observed in order to qualify for M. of H. grant. A

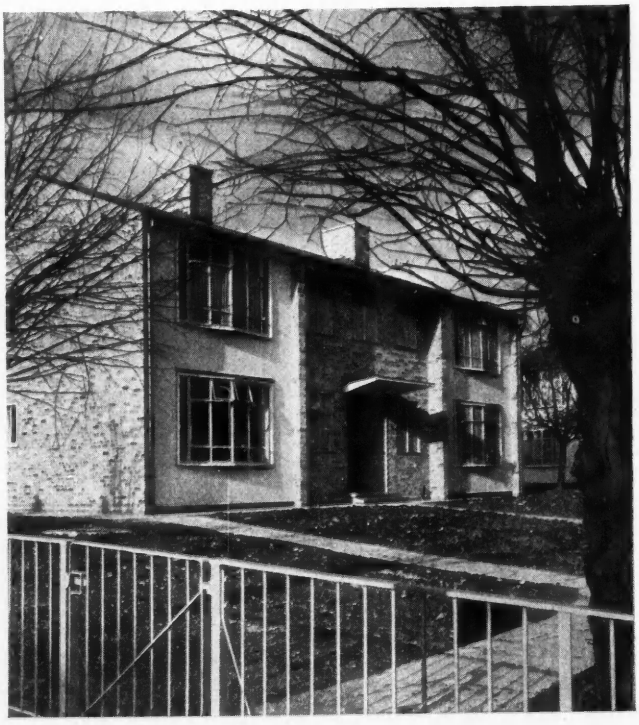




West flank of Block C, from south road. R.w. pipes are continuous copper sheaths with concealed sleeved joints and fixing lugs are made quite inconspicuous. Entrance doors are waxed hardwood with ¼-in. polished plate glazing. Steps are York stone, each step in one piece, 3 in. thick. The boundary railing is painted pale grey.

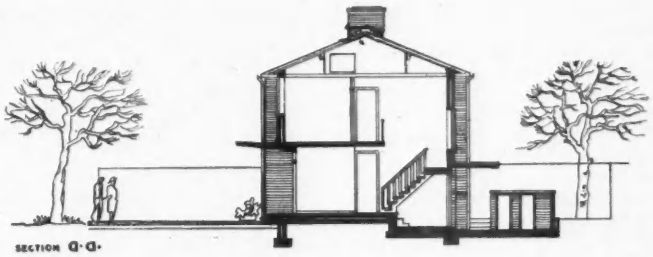
standardised flat unit, composed of living-room, bedroom, kitchen and bathroom, is arranged in two-storey blocks made up of either two, four or six flats each. The blocks are disposed on the site to form a private close in the southern portion on to which 14 of the flats open and living-rooms look out upon. A two-unit block with a sub-station building attached is located on the narrow northern part of the site to preserve the continuity of the road on this side. All the blocks are entered from a private path access which runs the length of the site from Limes-avenue on the south to Bowes-road on the north, where shops and public transport are immediately available.

The close is an irregular broken



Detail of Block A from south-east. Living-rooms and bedrooms, while small, are of shapes permitting utmost flexibility in arrangement of furniture. The low-cilled splay windows to living-rooms give an added spaciousness to these rooms. Every type of storage cupboard has been incorporated in kitchen, hall, bathroom and bedroom, while joint box-rooms (generally at 1st floor above entrances) are shared between 2 or 4 flats. Living-rooms and bedrooms have gas and electric power points, bedrooms having Nautilus flue vents incorporated. The open fire in the living-room has a back-boiler and the hot-water storage tank has an electric immersion heater connection. All kitchens have small built-in refrigerators.

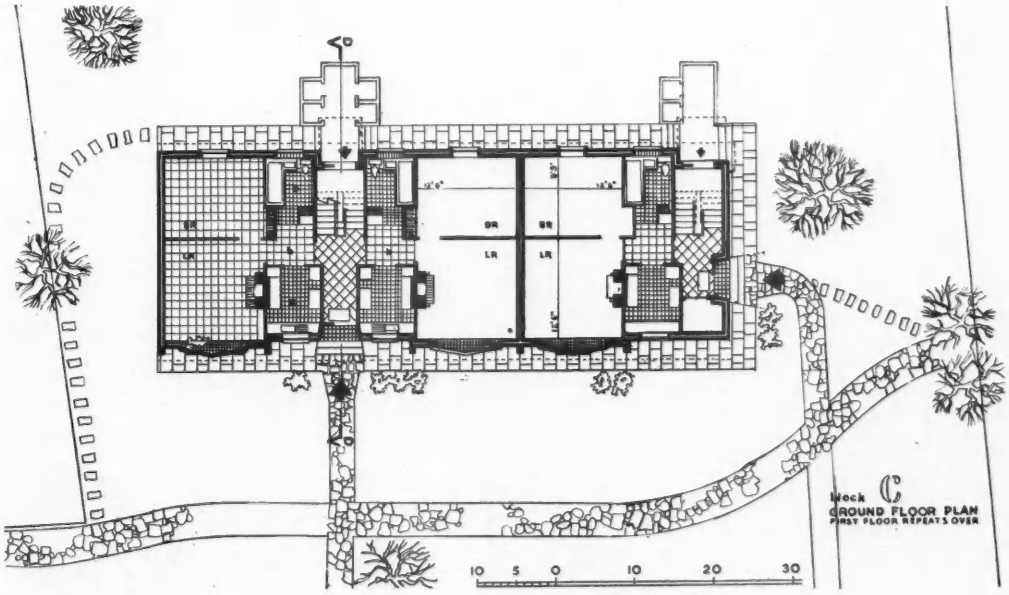
precinct, entirely open to the minor road on the south side. The blocks are arranged to permit the central tree-planted space to "leak" away and connect up with adjoining open green spaces where such linkage is visibly desirable. The low-pitched roofs, light brickwork and light painted panel walls to the living-room bays give to the small precinct a spaciousness and lightness, while the deep continuous eaves embracing clear-cut wall elements, decisively and severely detailed, impart to the whole a modest urbanity.



Construction: Materials and Finishes: External walls and all party walls are 11-in. cavity brickwork, the facing bricks being handmade sand-faced Stamford-stone Buffs built in lime mortar. The walls to the living-room bays are rendered and painted. The roofs are of timber construction with 1-in. diagonal boarding copper covered (26 SWG) with standing seams laid over felt. Throughout the job, in addition to the roofs, copper has been used for gutters, r.w. pipes, covering to canopies and window hoods, flashings and weatherings.

The first floors to living-rooms and bedrooms are of timber construction with narrow boarding laid over insulating board. Ground floors and the service bays at first floor (kitchens, bathrooms and staircases) are of concrete and r.c., respectively. External hoods above doors are also of r.c. Concrete floors are finished with 9-in. square patent tiles.

Block C. Detail of south gable end.

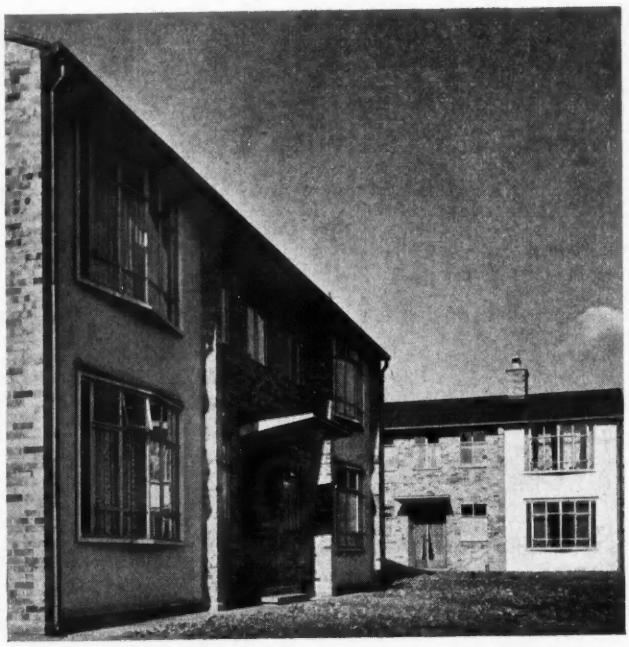


Windows are metal (galvanised): the large splay living-room units are set in precast surrounds at cheeks and cills, the projecting heads being *in situ* with the structural lintols. Bedroom windows are set in hardwood surrounds and kitchen and bathroom windows are built straight into brickwork and have rolled copper drip cills.

Communal external entrance doors with side panels are of hardwood, beeswax polished, and are glazed with ¼-in. polished plate glass. Entrance steps are of 3-in. York stone, each step being a single slab. The whole of the external paintwork to windows, surrounds, soffits and wall panels is of lead-base oil paint. The metal windows are pale ice-blue, surrounds are white and wall panels and soffits to eaves and canopies are white warmed to biscuit.

Cost: Total cost of buildings and layout — £18,500 approximately. Work was commenced in September, 1950, and completed in September, 1951, when all flats were occupied. The general contractors were Messrs. Orchard and Peer (London), Ltd. Sub-contractors and suppliers were:

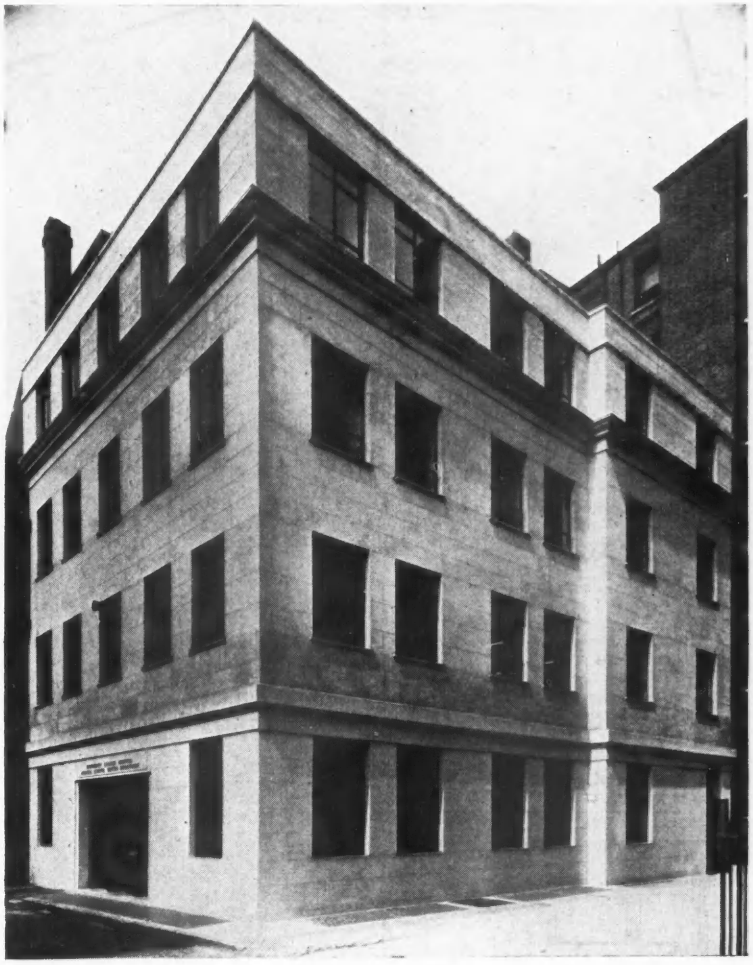
Copper roof, R.W.P.s, canopy covers, etc., Holloway Metal Roofs, Ltd.; metal windows, Henry Hope and Sons, Ltd.; metal railings, screens and staircase balustrades, Clark, Hunt and Co., Ltd.; bricks, Williamson, Cliff and Co., Ltd., Agent—W. L. Jackson and Co.; sanitary fittings, Shanks and Co., Ltd.; flooring (Accotile), Armstrong Cork Co., Ltd.; precast concrete window surrounds, Fabricrete, Ltd.; fireplaces and back boilers, General Light Castings, Ltd.; electrical installation, Tindall and Sons; refrigerators, Electrolux, Ltd.; hot and cold water services, W. H. Winwood; ironmongery and door furniture, Comyn Ching and Co., Ltd.; plastering, Edward Seare; asphalting, Field and Palmer, Ltd.; paint, Associated Lead Manufacturers, Ltd.; distemper, Walpamur, Ltd.; flush doors, Montague L. Meyer, Ltd.



Blocks A and B, seen from the south. Precast concrete surrounds to living room splay windows are painted white, all metal windows are painted pale ice-blue, rendered panels are painted white warmed to biscuit, likewise eaves and canopy soffits. Living room windows have a narrow reeded glass panel at each side behind which curtains may be drawn without "robbing" the window proper. At the same time the light is softened inside between window and wall. The cill is only 2 ft. 3 in. above floor to permit clear view out for a seated person. The bottom panels of glass are fixed so that ornaments placed on the cill inside remain undisturbed by the opening of the windows. Windows throughout can be cleaned from inside.

FLATS FOR ELDERLY COUPLES, ARNOS GROVE

Entrance detail, Block D. The demountable screen on the right—painted fluted asbestos panels supported in a light metal frame—masks the transformers to the small sub-station which is incorporated in this block. Windows at first floor light the boxroom and landing.



General view, showing main entrance (left).

DENTAL SCHOOL, MORTIMER MARKET, WC1

DYNELEY LUKER AND MOORE, ARCHITECTS

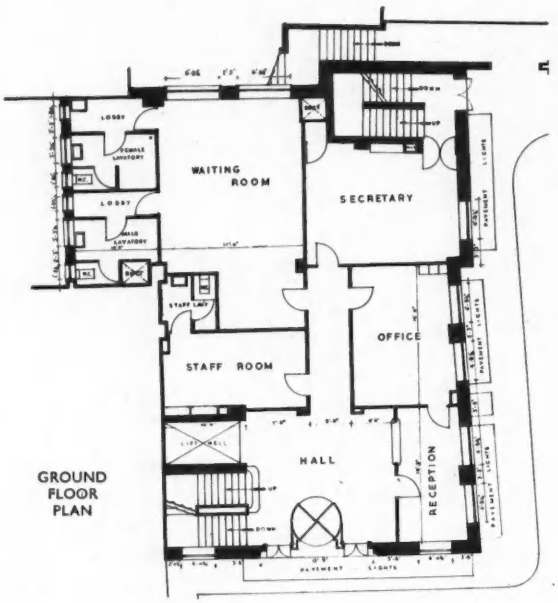
A MODERN dental school has emerged from the carcase of an old warehouse on a site in Mortimer Market, off Tottenham Court-road, W. The project was undertaken by the Governors of the University College Hospital Medical School and carried out by Dyneley Luker and Moore, architects.

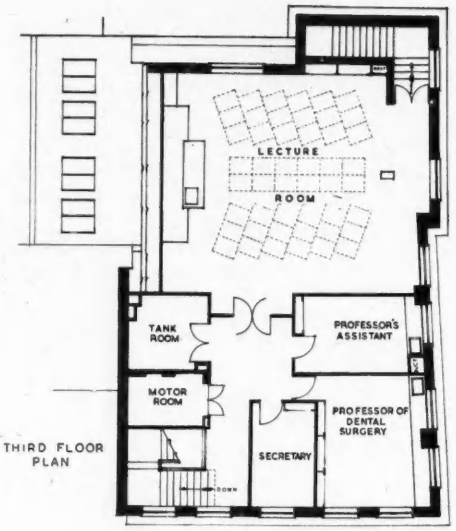
The original intention was to demolish the old warehouse, comprising basement and three floors above, and erect a new building on the site, comprising basement, plus four storeys. The restrictions governing the height of buildings as prescribed under the Buildings Acts prevented this, but if the old building were retained and converted, permission would be granted to add an additional storey. This latter scheme was adopted.

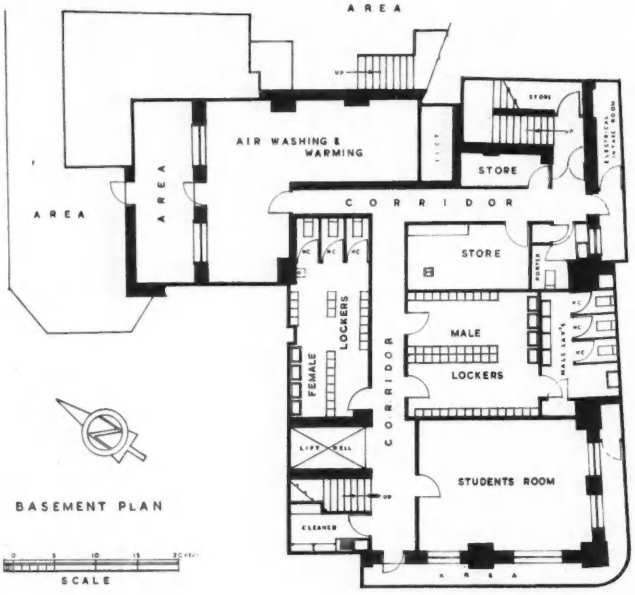
The warehouse, a brick-built structure, had filler joist floors supported on steel joists, the latter taking their bearing on four main brick piers. The foundations to these piers were found to be inadequate to take the increased loadings from the new third floor, and consequently had to be underpinned and new bases incorporated. Additional steelwork was built in to strengthen the old structure. False ceilings were constructed to the more important rooms on all floors. The ceiling of the lecture room on the third floor was acoustically treated.

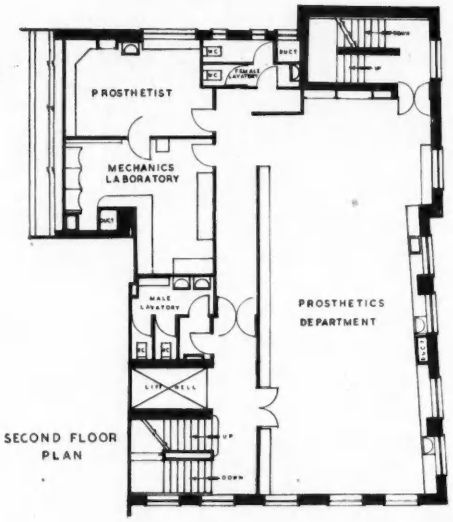
Briefly, the completed building, which is served by main and secondary staircases and passenger lift, provides the following accommodation: Basement (student's room, locker rooms, stores, toilets, heating and ventilation plant); ground floor (entrance hall, reception and waiting rooms, offices, staff room, toilets, etc.); first floor (dental mechanics' laboratory, curator's room, sand and castings room); second floor (prosthetics department, prosthetists' room, mechanics' laboratory, toilets, etc.); third floor (lecture room, offices of professor of dental surgery, and assistants, tank room, motor room, etc.).

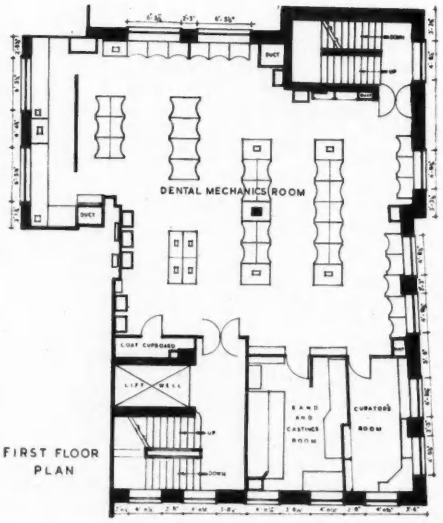
The floors generally are finished in green "Semastic" tiles. Landings to main staircase are in wood blocks. Floors to toilets and locker rooms are in red quarry tiles, and the main staircase is finished in green terrazzo. Decorations to walls and ceilings are executed in Vitretex compound in pastel shades.



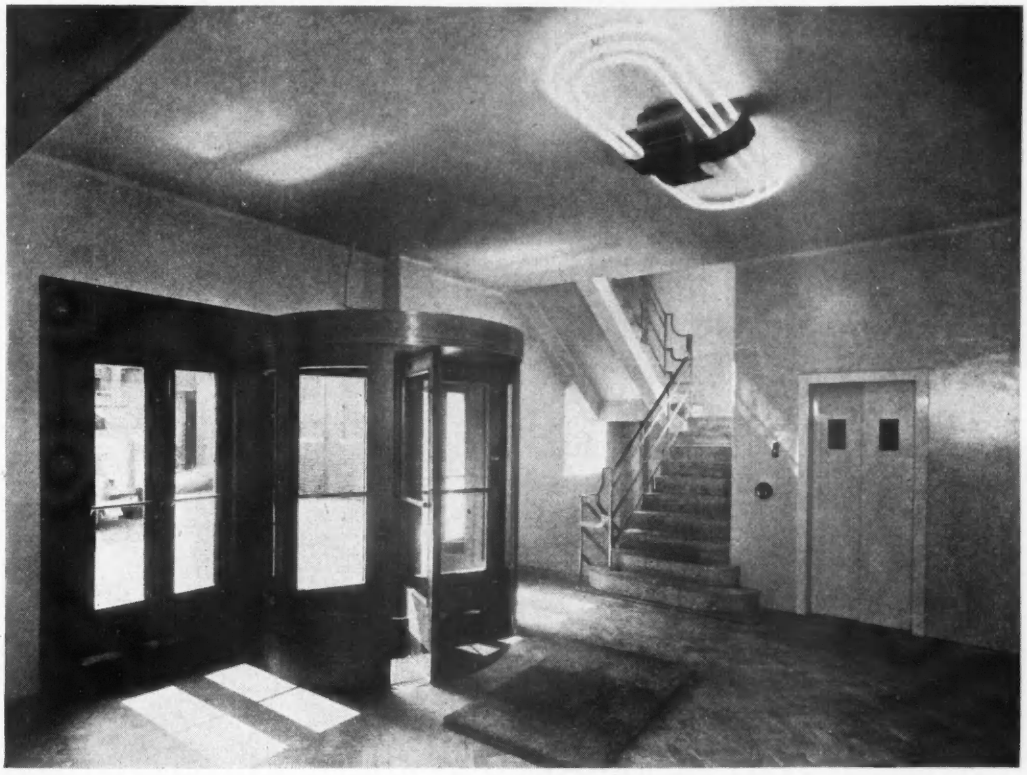








PLANS OF THE CONVERTED BUILDING



Entrance hall.

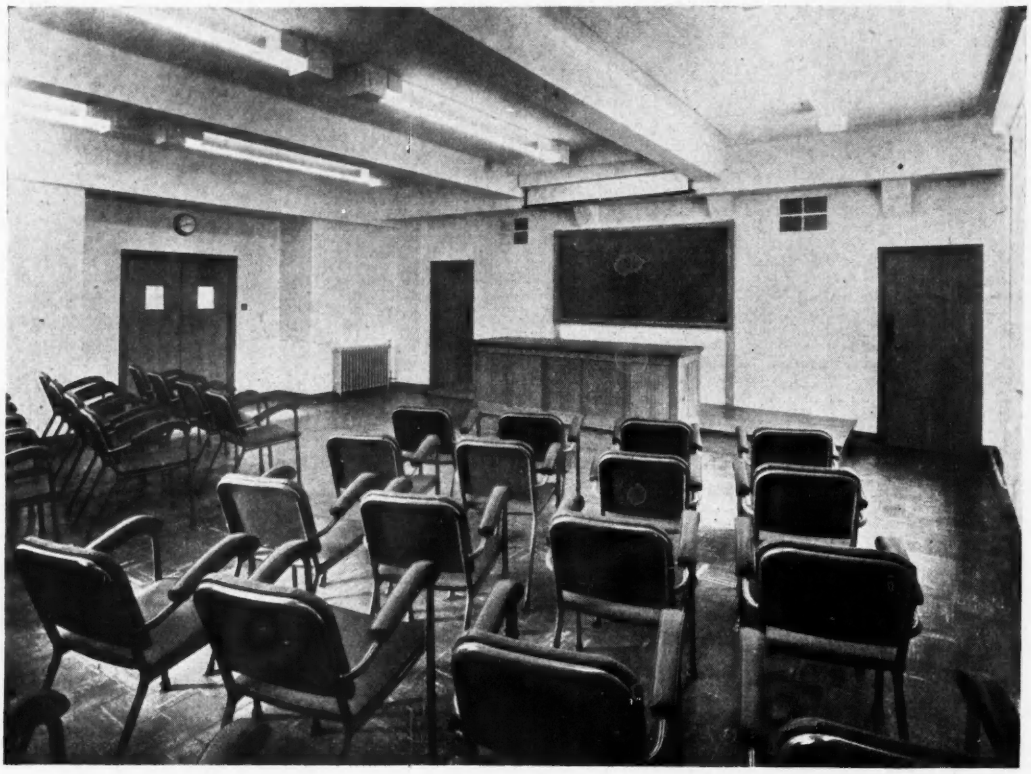
Joinery and laboratory fitments are in wax-polished oak. The external finish is in mastic artificial Portland stone rendering. A special feature, worthy of note, is the artificial "sunlight" illumination to the students' room in the basement, which was accomplished by glazing the windows in reeded "Perspex" with outside lighting by fluorescent tubes, placed vertically at the sides of each window.

The total cost of the scheme was approximately £45,000.

Messrs. Rice and Son, Ltd., were the main contractors and Messrs. John Leaning and Sons were the quantity surveyors. Following is a list of sub-contractors :—

Steelwork, Cook and Co., Ltd.; suspended floors, Caxton Floors, Ltd.; stone dressings and external renderings,

Prosthetics department.



Lecture room.

Reparations-Dreyfus, Ltd.; roof coverings, D. Anderson and Son, Ltd.; staircases, W. B. Simpson and Sons, Ltd.; windows, Crittall Manufacturing Co., Ltd.; plumbing and drainage, Dent and Hellyer Sanitation, Ltd.; pavement lights, Haywards, Ltd.; heating and ventilating, Rosser and Russell, Ltd.; electrical installation, T. Clarke and Co., Ltd.; lifts, J. and E. Hall, Ltd.

Flooring, Hollis Bros., Ltd.; sanitary fittings, John Bolding and Sons, Ltd.; acoustical treatment, May Acoustics, Ltd.; ironmongery and bronze lettering, Comyn Ching and Co. (London), Ltd.; stair balustrading, Bostwick Gate and Shutter Co., Ltd.; railings and guard rails, George Wright (London), Ltd.; electrical fittings and clocks, General Electric Co., Ltd.; laboratory fittings, revolving doors, joinery, Colmans, Ltd.; metal lockers, Sankey Sheldon, Ltd.; dental units, The Standard and Pochin Bros., Ltd.; dental chairs, Claudius Ash, Son and Co., Ltd.; projector screen, The Perforated Front Projection Screen Co., Ltd.; paints, etc., Vitretex (England), Ltd.

DENTAL SCHOOL, MORTIMER MKT., LONDON, WC1

Dental mechanics' room.

April 1

Son

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BUILDING COSTS

Some Contributory Factors Analysed

SIR,—May I put forward for your readers' considerations an analysis of some factors contributing to higher building costs in relation to wages and materials costs ?

In studying the Venning graphs (your issue of February 22), it is noticed that the building cost line hovers anything between zero and 10 per cent. above the wages line between the period of the two wars. From this it is reasonable to assume that the average pre-war cost for overhead and establishment charges including profit was about 5 per cent. average. This confirms my own actual experience from the year 1926 onwards.

It is noticed that the average difference between the materials and wages graph lines and the building cost line for the years from 1946 until the middle of 1951 is about 50 points or 45 points above what we would expect to find before the war. The present difference on the graph shows 80 points difference between the average and the building cost line. I doubt if this jump is accurate, although it is extremely difficult to pin-point cost at the moment.

In an attempt to reconcile the average of a 45 point increase over the pre-war average of 5 points for the difference in the cost of materials and wages and the building cost line, I have worked out the following analysis. This is based on a contract for flats or dwelling-houses. It must be realised that the percentage increases on various trades will vary according to the type of work and their proportion to the whole cost.

	Percentage increase in cost of labour due to lower output (not increases in wages).		*Resultant percentage increase in cost of work or contract.*
Excavator	115	equals	2.07
Concretor	65	,,	.65
Bricklayer	40	,,	4.00
Drainlayer	70	,,	.93
Slater or Tiler	25	,,	.20
Carpenter, Joiner, Iron-monger	25	,,	3.00
Smith and Founder ..	25	,,	.25
Plasterer	25	,,	1.46
Plumber	25	,,	.44
Electrician	25	,,	.08
Glazier	25	,,	.07
Painter	40	,,	.96
			14.11
Add adjustment for present increase of 225 per cent. for increase in wages, insurances, holidays with pay, etc. =14.11×225 per cent. =			31.72 points
Additional overhead expenses and proportion of profit on increased cost of work.			13.28 ,,
			45.00 ,,

This 13.28 point increase for overheads and profit on a total increase of approximately 200 points equals an approximate increase of 6¾ per cent. This is fair and reasonable.

A general slackness came about during the early days of the war, when it was essential to employ any available labour for clearance of bomb debris, urgent war damage repairs and service contracts. The workmen started a morning and afternoon tea break without the consent of the employers, but nothing could be done to stop it at the time. This became a habit that, although not officially recognised in the Working Rule Agreement, is a tacit understanding on most jobs, and at least a quarter of an hour is allowed each morning and afternoon for a break. In addition to this concession, there is a general slackness in the starting and finishing times that would not have been tolerated before the war. It is unusual to find the men at work before ten minutes after clocking-on time and ten to fifteen minutes before clocking-off time. In consequence of this loss of productive time, it has become necessary in estimating to allow for this, and since the early days of the war I, personally, have never allowed more than seven hours productive time for eight hours' pay. This is apart from any further drop in output during normal productive time. This reduction in productive time alone represents an overall increase of approximately 15 per cent. on cost of wages.

REASONS FOR LOWER OUTPUT IN BUILDING TRADE

One of the biggest drops in output is to be seen in the general labouring trades, such as excavator, concretor and other sections of the remaining trades that are dependent on the employment of general labourers. The principal reason for this is that during the period between the wars there was available, although in an ever decreasing number, a type of builder's navvy or labourer who, although classed as unskilled, was highly experienced in his job and could be depended upon for a reasonable output. As an example of this type of labour, in pricing hand-excavation in typical London clay, it was safe to assume a labour constant of 1½ hours per yard cube for excavate and throw out. To-day I would be taking a risk at pricing this at three hours per yard cube.

Other industries can offer such improved working conditions and pay for the type of man that would have normally come into the trade as a labourer that the residue that we have to call upon to-day is of a much inferior type. The net result of all this is that, in pricing the items in a bill that represent the efforts of general labourers, I have to allow a 100 per cent. increase over pre-war values.

The introduction of the incentive scheme has not helped to the extent expected. I found that the targets fixed by the early Ministry of Works schedule were often wrong, and once the men became aware of the good and bad items, they rapidly exploited them. I have experienced the anomaly of paying out big bonuses at various stages of brickwork, such as from foundations up to cill level, or between window head and cill level, to find that the output for the between stages that were broken up with window openings, etc., would drop to half of the normal ; the result being that the cost of the brickwork was higher than to be expected with the bonus system, even though bonuses had been earned and paid. This is typical of what can happen with the incentive scheme. I have not found that this scheme has generally cheapened the overall cost of work. What bonuses are earned are more than discounted by the increase in overhead expenditure for bonus clerk, etc., and the general discontent caused among the remaining men that do not take part in the bonus earned. This latter item is a serious one as it causes a drop in their efforts and often a bonus has to be paid them to keep them employed, although the men have not earned one.

In comparing the overhead expenses of a contracting firm before and after the war, there are many reasons for the overall increase in the percentage that has to be added in the estimates of to-day. Before the war, it was a common experience to find that if a contractor was able to employ his organisation to its full ability, and it was sufficiently capitalised to be able to pay his merchants' accounts at the proper time, his cash discounts alone would more than cover his establishment charges. Consequently the rates he would use in the bill would represent cost plus profit. Hence the reason why many pre-war jobs would often be taken on as low as cost plus 2½ per cent. To-day, with the many delays in final settlement of accounts and often slow payment for works in progress, the builders very often cannot treat the possibility of being able to take advantage of cash discounts. There is, also, the constant delay in the normal procedure of the work, due to insufficient supply of men and delay in delivery of materials. This can have a very serious increase in the cost of overhead expenditure when it is considered that most work to-day takes at least 25 per cent. longer than it would do if men's output and material supply were normal. A big increase in the number of staff is also required to cope with the P.A.Y.E. returns, the bonusing of jobs, etc., and the ever-increasing amount of paper work required in the administration of a busy builder's office.

Contractors' plant is to-day much more involved than before. Although earth-moving and similar machines do offset to-day to a certain extent the lack of good labourers, the full saving in working cost is not apparent over post-war figures because of the high initial purchase price and maintainance costs of these useful machines. Most contractors have now introduced a superannuation scheme for their staff and, although this is in part self-contributory, there is still a charge on overheads for the firm's share. An efficient contractor's overhead charges would possibly vary between 7½ per cent. to 12½ per cent. to-day, whereas before the war it was unusual to find it above 5 per cent.

These are some of the items that have influenced the increasing costs of building to-day. After taking these into account in the general pricing of the bill, we then get to the stage when the directors have to decide what the tender figure shall be. It has become more evident with the passing years that many of the best established firms are much more selective in the job they will go for. Before the war they could usually depend on delivery dates for their materials when wanted and, also, a reasonable labour market. To-day they are faced with uncertainty both with regard to materials and an insufficient supply even of poor labour. No small wonder that at this stage of the proceedings it is not unusual for the directors to add a further 10 per cent. to the anticipated labour bill as an insurance on this item.

There are, of course, always the up-and-coming firms that cannot afford to be so discriminating and will optimistically put in a tender, ignoring the realities of to-day's troubles and anticipating the offsetting of all the unknown snags that are likely to arise by putting in the usual claims for delays, etc. Such firms, however, are not the industry.

E.G.GARMSTON

HOUSING PROGRESS REPORT

Figures for February

THE Housing Summary presented to Parliament on April 2 as a White Paper* jointly by the Minister of Housing and Local Government and the Secretary of State for Scotland, shows that the number of permanent houses completed in Great Britain during February was 16,163 compared with 15,692 in January and with 13,984 in February, 1951. The total of houses completed under the post-war programme is now 1,205,350 (1,048,204 permanent and 157,146 temporary).

* Cmd. 8500 Housing Summary, February 29, 1952. H.M.S.O., price 2d.

SERVICES AND EQUIPMENT IN HOUSING

New Ministry Circular

THE Minister of Housing and Local Government, Mr. Harold Macmillan, has followed up (in a circular, No. 37/52, dated April 1) his suggestions for economising in the design of houses, demonstrated in the "People's House," by asking local housing authorities to consider whether they can save scarce materials and labour, and keep rents down, by reviewing the equipment of their houses. The circular states:—

In circulars Nos. 70/51 and 6/52 the Minister drew the authority's attention to new house designs which take less materials and are cheaper to build than the types usually built by local authorities in recent years. He pointed out that, in these new designs, rooms and living space are fully up to the standards laid down in the Housing Manual, 1949, and that since houses to these designs can be built at lower capital cost, they should be cheaper to rent.

The authority will no doubt agree that, under present conditions of supply difficulties and high building costs, all economies consistent with the maintenance of proper standards in the construction of their houses must be secured in order to save materials and labour, and make it possible to let the houses at rents within the reach of those for whom they are intended.

But it is necessary to consider economies not merely in the design of the houses but also in the services and equipment to be installed in them. There is no suggestion that essential services or equipment should be omitted, but a significant reduction in the cost of the house—and, consequently, in the rent at which it can be let—can be made if the essential is distinguished from the unessential.

The authority should in this matter have due regard to the requirements of those to whom the houses will be let. These are likely to vary between area and area, and, indeed, within the same area. If so, the authority may decide to instal services and equipment of different standards in different groups of houses at appropriately varying rents. They will keep in mind that a saving of £50 in the capital cost of a house is equivalent to a reduction of over 10d. a week in the rent. So long as materials and labour are scarce and costs high, prospective tenants may prefer to do without some of the less necessary though still desirable services and items of equipment if by so doing they could still have a good house at a lower rent.

The Minister requests that the authority will give the most careful attention both to the design of houses and to the services and equipment to be installed in them. For his part, he will not disapprove for purposes of subsidy houses in which these items are kept to essentials.

OBITUARY

H. R. Lane, A.R.I.B.A.

We regret to announce the death, which occurred in Ceylon on March 28, of Mr. Howard Ross Lane, A.R.I.B.A., A.M.T.P.I., formerly of Christchurch, Hants., Cheltenham and China. He was 48.

Herbert Hamer, M.Inst.C.E., F.R.I.C.S.

We regret to record the death of Mr. Herbert Hamer, M.Inst.C.E., F.R.I.C.S., former Liverpool City Engineer and Surveyor, who retired for health reasons about six years ago. Mr. Hamer was associated with municipal work for about thirty-five years and was City Engineer for Hull from 1930 until he went to Liverpool in 1937.

William J. Taylor, F.R.I.B.A.

We regret to announce the death of Mr. William John Taylor, F.R.I.B.A., at Old Edinburgh-road, Inverness, on March 29. Mr. Taylor was elected an Associate of the R.I.B.A. in 1921 and Fellow in 1928.

Housing Ministry's Tasks

"Planning Functions not Forgotten"

MR. HAROLD MACMILLAN, Minister of Housing and Local Government, denied last week that the omission of the word "planning" from the new title of his Department meant that they had any intention of letting the planning functions of the Ministry go by default. The occasion was a luncheon given by the Town Planning Institute in London, at which Mr. Macmillan was the principal guest. The president, Mr. Ernest H. Ford, O.B.E., M.I.C.E., was in the chair.

MR. MACMILLAN, who was replying to the toast of "The Guests," proposed by Sir George Pepler, C.B. F.R.I.C.S., Hon.A.R.I.B.A., who had made play with the changes in the title of the Ministry of Housing and Local Government, said that the change in name was merely an attempt on the part of the Government to show its "vast and overwhelming" interest in housing, and to put it first on the list of civil questions with which the Government had to deal.

He, himself, was old enough to remember the birth, or more properly the re-birth, of planning which was, in fact, one of the oldest conceptions of civilisation—after the long domination of *kaissez-faire* that had lasted for more than a hundred years. Now the scales had turned the other way, but he gave a warning that we must be careful to see that, now the ideological battle for planning had been won, planning was not abused. In the words of Humpty-Dumpty, "Who is to be master, that is all?" In his sense planning meant physical planning—the use of the land of this small island, with its vast population, for the best purposes.

Mr. Macmillan went on to say that although the Government's immediate concern was with the housing drive, there was no intention on the part of the Ministry of letting go the planning functions. That was not the aim at all. He believed that it was a good thing for planning to become bound up with local government, for it was only local government that could give effect to practical planning measures. Moreover, in housing he was extremely anxious that the planning authorities (i.e., the county councils) should encourage the housing authorities not to wait until it was too late before consulting them on their schemes, but to settle their housing plans well in advance. Schemes must be planned for fructification three, four and five years ahead.

Describing the Town Planning Institute as the "very brain centre of planners," Mr. Macmillan said that the public looked to the Institute for much help in the future, and if the work on which they had embarked years ago was to reach fulfilment they must have the understanding and sympathy of the people. The key to the situation was to show that planning, properly applied, was a creative, positive force and not a piece of negative and restrictive machinery.

In a brief reply, the PRESIDENT pledged the Institute to give the Minister its complete loyalty and support.

HOUSING BOARD'S AIMS DEFINED

"Not Just Another Committee"

THE new Southern Region Housing Production Board, formed to assist local authorities in Bucks, Berks, Oxon, Hants and Dorset with building problems, met for the first time at Reading on March 26.

They drafted the outline of a plan "to bring all those concerned in house-building in the region into closer consultation and co-operation so as to keep local housing programmes and their development under constant review and advise on the measures necessary to secure their punctual completion."

After the meeting, the chairman, SIR REGINALD DORMAN-SMITH, explained: "The Board will receive reports of building progress in the region and if something looks a bit odd or appears not to be going well, we shall go down there to try to help them out. We do not want to be regarded as just another committee—and we certainly shall not sit here all the time."

SIR PERCY MILLS, advisor to the Minister of Housing and Local Government, attended the inaugural meeting in an advisory capacity. He said: "This Board will have influence with the Ministries. The Board's recommendations will be put to them and there will have to be a very good reason if they are not carried out.

"Housing is our greatest social question and it is unsolved. We are going to see what we can do to help the work along. We have not only to apply our minds but our hearts, too; and I am sure we can get things done that way. Our object is to bring together all those concerned with house-building in this region.

"What the Government want is to provide more homes for people as quickly as they can. The confidence of the building trade is needed for this housing drive."

The Board will meet once a fortnight.

A Regional Housing Board

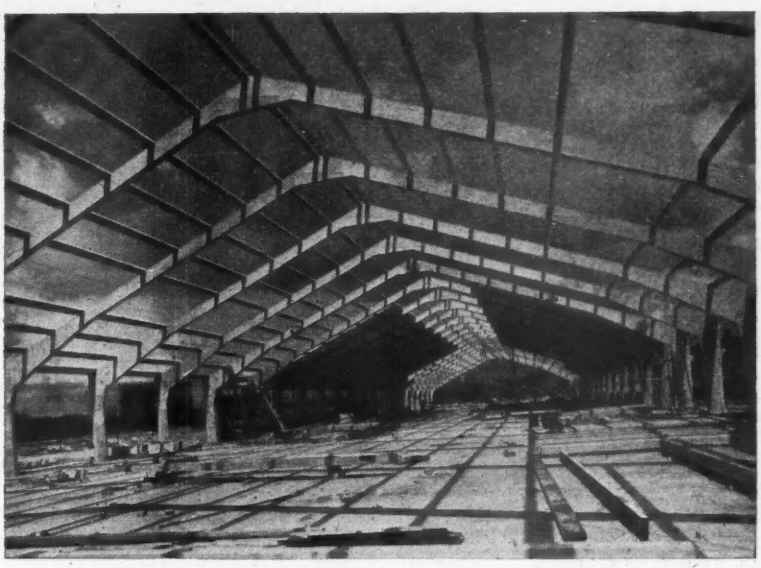
The Housing Production Board for the East and West Ridings of Yorkshire has now been set up. Its headquarters will be in Leeds, and the independent chairman is Mr. H. Woodhead, O.B.E., J.P. Representatives of the building trades employers are Mr. Wilfred Horsfall and Mr. Lewis Morrell; and representatives of the operatives are Mr. D. W. Emmott and Mr. A. Hanson. Mr. M. B. Tetlow, Principal Regional Officer, will represent the Ministry of Housing and Local Government; and Mr. S. D. Morton, the Ministry of Labour and National Service. Mr. C. C. Burdge will represent the Ministry of Works.

HOUSE-SELLING OFFENCE

£550 Fines Imposed

TERTIUS JOHN CRAIG and his wife, Marjorie Craig, of Kingsway West, Newcastle-under-Lyme, were, at the Birmingham Stipendiary's Court recently, fined £500 and £50 respectively on a charge of selling their house at Twycross-grove, Castle Bromwich, at an excessive price.

It was stated that the house was originally controlled at a price of £1,140, but this was later raised to £1,251 to cover improvements. In August last, the house was bought at £724 above the controlled price. The Stipendiary made no order as to compensation of the purchaser.



The precast structure at first-floor level nearing completion.

NEW FACTORY FOR DOULTON AND COMPANY

LOUIS ERDI, LRIBA, CONSULTING ARCHITECT FOR THE ELEVATIONS

W. S. ATKINS AND PARTNERS, CONSULTING ENGINEERS

THE question of how they might extend their Whieldon Works, Stoke-on-Trent, was being examined by Doulton and Co., Ltd., before 1939, but with the outbreak of war any idea of carrying out such a programme had to be left in abeyance. Now a scheme of reconstruction is in process of fulfilment.

The Whieldon Works specialise in sanitary earthenware and vitreous china. Previously, all the firing there was carried out in a number of coal-fired intermittent kilns known, because of their shape, as "bottle kilns," but these are being replaced by two "Dressler"-type continuous gas-fired tunnel kilns of the most modern design. These new kilns are each about 320 ft. long and the new building has been specially designed to house not only them, but all the processing after the first or "biscuit" firing.

The two new tunnel kilns with their attendant processes are placed at first-floor level. The ground floor provides facilities for testing, assembly, storage, packing, and finally, the despatch of the goods. As a result of these new arrangements it has been possible to reorganise the earlier stages of manufacture carried out in the already existing buildings; that is to say from the processing of the raw materials up to the completion of the unfired or "green" ware.

The two kilns have different functions; one produces unglazed or "biscuit" ware, the other glazed or "glost" ware. To maintain an unbroken flow in production the kilns are ranged side by side and head to tail down the centre of the building. "Green" ware is delivered to the north end of the new building at first-floor level. It is then passed through the "biscuit" kiln to emerge into a spacious working area where it is inspected, brushed, glaze applied and dried ready for the next firing. During this second, or "glost" firing, which the other kiln performs, the ware is returned to the northern end where it receives a final inspection and is then transferred by lift to the ground floor.

CONSTRUCTION

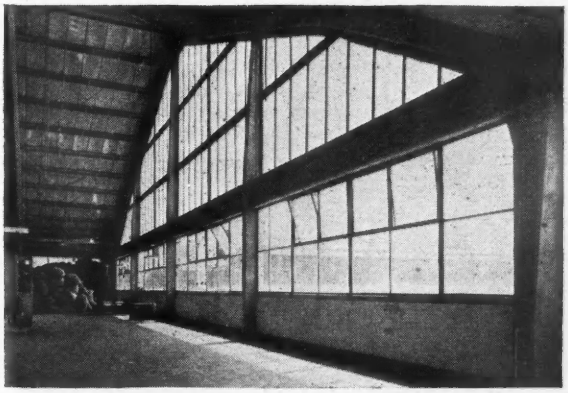
The site.—The site of the new building is separated from the remainder of the factory by a canal and it has been necessary to construct a bridge of 130-ft. span carrying a conveyor.

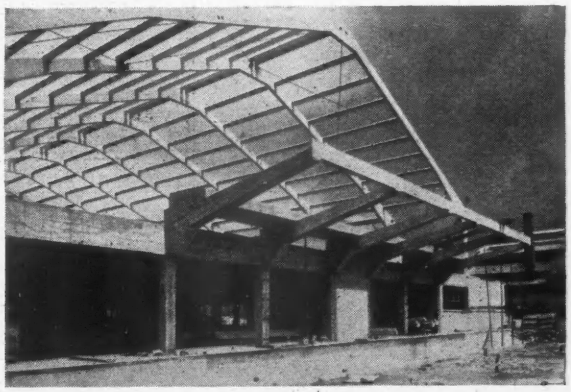
Owing to the fact that the site consisted largely of made-up land of poor load-bearing capacity, the whole building is founded on a system of *in situ* piles—good load-bearing stratum being found at from 20 ft. to 30 ft.—to minimise any danger of subsequent differential settlement and the damage which this might cause to the kilns.

In situ framing.—Up to and including the first-floor slab, all the construction, with the exception of a small annex to the east, is in *in situ* concrete framed. It is on this construction that the load of the kilns is carried. Columns at 15 ft. centres divide the building lengthwise into 32 equal bays; main beams run longitudinally and span the 15 ft. from column to column, and secondaries at 7 ft. 6 in. centres span transversely between the main beams. The suspended slab of the first floor is 5 in. thick and cast integral with the beams. At the ground level the pile caps are connected by a series of cill beams, but, in general, the ground-floor slab is not suspended; where concentrated loads have to be carried it is, and the cill beams and slab are then cast integrally. Elsewhere, paper joints separate the one from the other.

THE LARGEST SPAN

Precast framing.—From first-floor slab upwards the construction changes from the *in situ* to a proprietary precast system of framing, of which the span is 85 ft. Spans in framing of this kind have been





The south gable from the inside and (right) rom outside showing the in situ *ground-floor structure carrving precast framing above and roof wind bracing.*

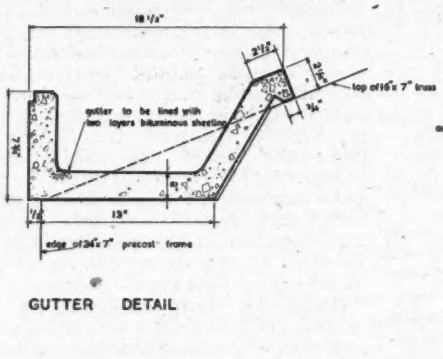
steadily increasing for some time past, and although that at Whieldon has been exceeded in France by one from the same designers, this one, of 85 ft., is thought to be the largest yet erected in Britain. The framing consists essentially of transversely spanning portals spaced at 15 ft. centres which carry precast purlins 4 ft. 6 in. apart and special gutter units along the eaves.

Each main cross spanning portal is made up of four separately cast members with a patented system (LAMBDA) of scarfed jointing at the connections which maintains the required degree of structural continuity. The leg members are " L " shaped, they weigh about 2½ tons each and are designedly stiff to minimize moments of bending in the rafters. Rafter elements weigh about 1½ tons apiece and despite their span are only 18 in. by 7 in. in sectional area. Laterally the stiffness and structural rigidity come from the purlin and gutter units—with the method of jointing used at their connections. To form these joints, " U " shaped bars projecting from either end of both types of unit, are looped round fixing bolts that protrude upwards from the backs of the rafter principals; the nut to these bolts is tightened down over a large washer which grips and holds the " U " bars in place: and the joint completed by filling with a grout and flushing up the 2 in. wide gap formed between the ends of the units. All the precasting for the main frames was carried out at the site and the smaller units — purlins, gutters, roof slabs and so forth, were all factory made. Main frame sections were actually cast on the first-floor slab itself, and, to save handling, as near as practicable to the places in which they were ultimately to be used.

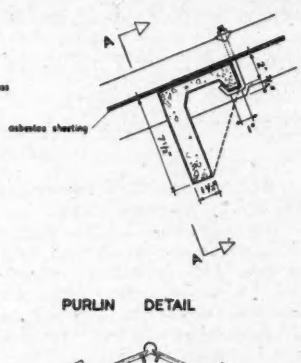
Because wheel loads from a mobile crane would have been too great for the slab to withstand, the lifting was performed with four guyed timber poles, blocks and hand-operated winches. After being lifted into position the leg members were plumbed and lined up along the scarfings and kept in line by temporary scaffold frames. These units were dowelled at the foot with the *in situ* concrete of the lower storey and during the placing were wedged accurately into position in holes preformed in the first-floor slab. The lifting and placing of the rafter members followed, and it was not until these had been bolted up that the weight on the poles was eased and the dowels grouted up. Erection of purlins and gutter units followed on immediately behind the erection of the portals.

WALLS AND ROOF COVERINGS

The external wall infilling to all the reinforced concrete framing is in 11 in. cavity brickwork. The windows are metal casements which on the first floor extend from column to column uninterruptedly from end to end of the building. For the main roof the covering is asbestos cement corrugated sheeting. Above the kilns this is of the normal type, laid with normal laps, but to the working area at the south end of the building where thermal insulation is of importance the sheeting is of the combined type. In the kiln area there is little need for central top lighting—that given by the windows is adequate. At the north end, however, where " glost " ware is inspected and good lighting is essential, 6 ft. wide strips of patent glazing are incorporated in the roof. Patent roof glazing was also fitted into each of the two gables. To reduce glare through that facing south, the rough-cast wire glass



GUTTER DETAIL



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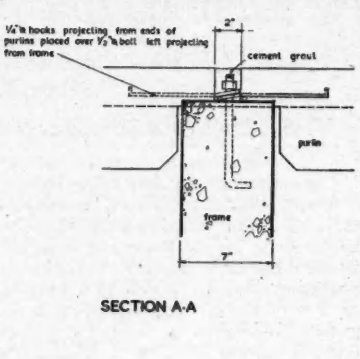
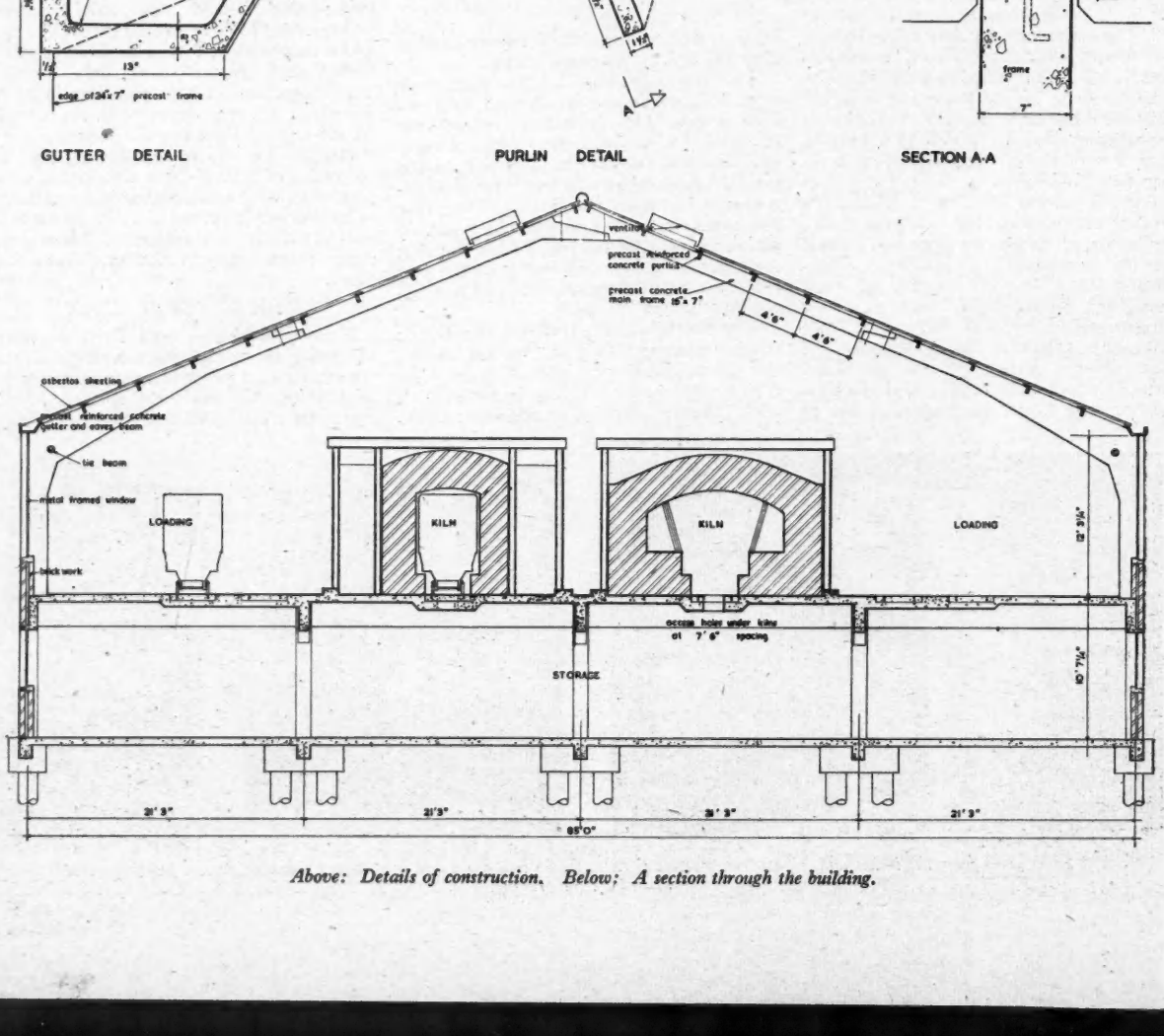
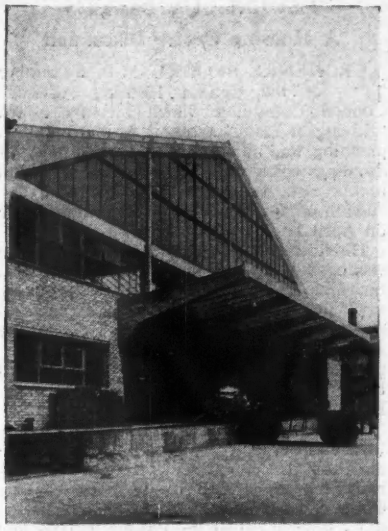


SECTION A-A



Above: Details of construction. Below: A section through the building.



The south gable completed, showing canopy and dispatch loading dock.

which was used was sand blasted on the inside. Lead clothed steel bars have been used throughout for the patent glazing as, during the biscuit firing, fluorspar in the clay gives rise to fluorine gas which might well attack other materials.

The heights inside on this upper storey are 14 ft. to eaves and 30 ft. to the ridge. The kilns are near mid-span and there is therefore a considerable amount of space above them. Louvred extracts along both sides of the roof ridge carry off the heated air and others immediately below the eaves provide the necessary inlets.

Like the glazing bars, the paint for the finishing was selected for its resistance to chemical attack. The danger was that ordinary paints would be affected by the fluorine gas and the windows, which were supplied zinc sprayed, and all the other exposed steelwork were accordingly finished with a paint with a chlorinated rubber base.

THE CONVEYOR BRIDGE

The conveyor bridge of 130-ft. span between the old and new buildings is constructed in steel. Full use is made of welding to give a light economic structure, which has clean lines and avoids corrosion pockets—an important consideration in the Potteries' atmosphere. The principal features of construction are the use of the floor plate of the bridge as tension flange for the two-side plate girders making the whole bridge a large U-shaped girder, and the unbroken internal surface, all stiffeners and projections being on the outside. The asbestos roof sheeting and the strip of side glazing are carried on small portal frames bridging the main girders.

The quantity surveyors were Messrs. Gardiner and Theobald.

The main contractors were Messrs. C. Cornes and Son.

Other contractors were :—

Piling, The Franki Compressed Pile Co.; weighbridge, W. and T. Avery, Ltd.; fabrication of conveyor bridge, The Fairfield Shipbuilding and Engineering Co., Ltd.; erection of conveyor bridge, fabrication and erection of gas producer house, Carter Horseley, Ltd.

The following were the sub-contractors employed :—

Granolithic floors, The Empire Stone Co., Ltd.; precast concrete, Naybro Stone, Ltd.; handrails, etc., Clares (Engineers), Ltd.; sanitary ware, Whieldon Sanitary Potteries, Ltd.; windows, etc., Aygee, Ltd.; electrical installation, F. Hancock (1939), Ltd.; heating and ventilation, William Truswell and Son; signs, The Morris Singer Co., Ltd.; lift, Evans Lifts, Ltd.; steel lockers, Waddells, Ltd.; metal door frames, Henry Hope and Sons, Ltd.; hoist, Felco Hoists, Ltd.; fire hose reels, John Kerr and Co., Ltd.; ventilators, Colt Ventilation, Ltd.; steel partitions, Sankey Sheldon, Ltd.; roller shutters, Dennison Kett and Co., Ltd.; Accotile flooring, R. W. Brooke and Co., Ltd.; asphalt flooring, Highways Construction, Ltd.; felt roofing, William Briggs and Sons, Ltd.; sewage pump house equipment, Tuke and Bell, Ltd.; terrazzo, W. B. Simpson and Sons, Ltd.; asbestos roofing, The Exors of Jos. Toft, Ltd.; fireproof doors, Durasteel Roofs, Ltd.; cubicles, Flexo Plywood Industries, Ltd.; Glascrete windows, J. A. King and Co.

BEDFORD

A Planning Report

Reviewed by H. V. LANCHESTER, Hon.Litt.D.

SOME years ago a competition was held at Bedford for the reconstruction of the municipal buildings and the Shire Hall block adjoining. Owing to unsatisfactory site limitations nothing further was done at the time and more recently the Corporation decided to have a more general improvement scheme prepared, appointing to undertake it Mr. Max Lock and his group, who took into consultation the County Planning Officer, Mr. E. Sterne, B.Sc., A.M.I.C.E., M.T.P.I., and the Health Officers of the city. The Mayor, Alderman Richard Turner, J.P., has also taken a keen interest in the undertaking and contributes a brief foreword to the publication now issued.*

Those who have taken note of the previous work of Mr. Max Lock and his co-adjutors will count on finding very thorough and comprehensive preparatory studies and statistical schedules in support of the general lines of the proposals submitted; and in this case we find a striking series of views showing the main features of the town and its activities, these latter including its well-known educational eminence and an important industrial element, in addition to its position as the county centre.

Bedford is pleasantly situated in the open valley of the smoothly running river Ouse; founded on the north side of the river, it now extends over an almost equal area to the south and the main bridge between the two halves has recently had to be widened to 100 feet. Along much of the river are strips of flood meadow, giving an open general effect not usually to be found in a town of this size. Large areas are well laid out; particularly to the north-east, there are pleasant groups of trees and buildings so that an attractive proposition is offered to the planner.

The south-west is not usually regarded as the best quarter for industry, but in this case it has been inevitable owing to the position of the railway services, and the larger buildings are, fortunately, not of a dominating character. As it is not suggested that there is any more appropriate location elsewhere, the additional factory sites are located in this quarter.

Despite the attractive aspect of Bedford, it presents a number of problems to the planner; the most obvious of them is, perhaps, that of traffic. Bedford is the centre of some eight radial highways and the central streets, particularly High-street running north from the bridge, have become congested by the rapid increase of road traffic in recent years. Much of this is through transport, and for that running north-south a convenient by-pass is planned along the west margin of the built-up area; traffic running east-west is less easily dealt with but has more alternative roads, and these can be assisted by a ring route which it is practicable to plan. For vehicles stopping in the city, it is proposed to clear areas of obsolete buildings as parking places.

Again, congestion is also due to the concentration of shops in and near High-street; the remedy proposed in this case is a clearance of old property and an extension of the business area in the direction of the railway station, which would be a natural position for this with convenient access from all sides, Bedford being a popular shopping centre for the country around. In order to facilitate movement in the centre, roundabouts are opened up at appropriate points.

Bedford is well provided with substantial houses, but the demand is now for houses on a smaller scale and this change has involved studies in the economies of reconstruction or adaptation as against clearance and re-planning, the latter being admissible only in minor areas; thus the bulk of the new housing required and its communal adjuncts will have to find sites on the margins of the occupied area mainly to the north-east. The Oxford and boulder clays covering this area are a poor foundation, but can be made adequate for buildings of normal height. A more important consideration arises from the fact that the land has a high agricultural value so that the economics of its acquisition demand careful study, in order to damage production as little as possible.

The more obvious features of the proposals are a new bridge over the river between the town bridge and the railway bridge, with the grouping here on the north bank of all the important public offices. This would form a striking civic centre but for the presence there of Wells' Brewery, which it is hoped at some future date may be taken elsewhere. On the south side, opposite, is provided a large site for a college of further education, while on the same south bank to the east of the town bridge is a group of recreational buildings including a swimming pool, theatre, boathouse, restaurant and cinema, which suggests a miniature "South Bank."

The book is admirably illustrated and the maps very well printed; we have only one criticism to make as regards the latter: similar colour scales are used in the different maps to represent dissimilar series of factors, which is liable to be confusing.

* Bedford by the River. A Town Planning Report by the Max Lock Group. (London: John Murray.) Price 21s. net.

LAW REPORTS

Appeal Against Payment for Unlicensed Work Succeeds

COURT OF APPEAL.

BEFORE LORDS JUSTICES SOMERVELL, DENNING AND ROMER.

Walker v. A. Smith and Son (Bognor Regis).

AN appeal by Mr. James Jack Walker, of Mill-lane, Arundel, Sussex, against the judgment* of Lord Justice Morris for A. Smith and Son (Bognor Regis), Ltd., builders, of Hawthorn-road, Bognor Regis, Sussex, for £1,858 12s. 6d. in respect of work done to his property at Mill-lane, was heard by the Court of Appeal on March 25.

Conducting his own case, Mr. Walker applied for leave to call further evidence.

The application was refused, Lord Justice Somervell stating that the evidence could have been given at the trial.

Mr. G. R. F. Morris, for the company, said that the premises were rebuilt for use as an ice-cream factory.

Lord Justice Somervell, giving judgment, said that a licence was required for the work, but there was never a licence for the demolition of a wall. The contract provided for an immediate payment of £500, and another £500 was paid later. The company sought to say that those payments should be allocated to the unlicensed work, which was the only work which had been done when they were made.

"I think," said his lordship, "that Mr. Walker is right in saying that those payments must be treated as payments under the contract, and to that extent the appeal must be allowed."

Lord Justice Denning said that this point was a new one in building contracts. When builders undertook work they ought to know that they must see the licence before they started the work. The question in this case was whether the builders, having done work which was unlawful because it was not licensed, could recover the cost of it. The first part of the work done in this case was not licensed, and if payments were made generally on account of the contract the creditor could not be allowed to appropriate them to the unlawful part of the work. He could appropriate them only to the lawful part. Any other rule would undermine the whole law about building licences. It was not permissible for the builders to appropriate these payments to the unlicensed work, because their pleadings showed that the payments were made generally on account.

Lord Justice Romer agreed, and the court reduced the amount of the judgment to £858 12s. 6d.

Work Started Before the 1947 Act Came Into Force

COURT OF APPEAL.

BEFORE THE MASTER OF THE ROLLS AND LORDS JUSTICES JENKINS AND MORRIS.

Marks and Spencer, Ltd., v. L.C.C.

THE Court of Appeal, by a majority (the Master of the Rolls dissenting), on April 1, allowed the appeal of Marks and Spencer, Ltd., from the judgment of Mr. Justice Harman that the company had not, before July 1, 1948, the "appointed day" for the coming into force of the Town and Country Planning Act, 1947, begun works for the erection of their office building on a site at Paddington-street and Chiltern-street, Marylebone, and that they had not a valid permission under Part 3 of the Act to go on and complete the building.

According to the facts as agreed, the appellants had, by a contract with Boyer, Ltd., completed the demolition of all buildings on the site by the end of July, 1939, and that, owing to the world situation at that time, they could not proceed with building operations. The appellants had obtained permission from the L.C.C. in August, 1938, to do the work provided it was completed within 18 months from August 1, 1938. When, after the war, they asked permission to proceed, the L.C.C. changed their views because of the passing of the 1947 Act.

The main question in the appeal was whether the demolition operations came within the meaning of the words of Section 78 of the 1947 Act—"where any works for the erection or alteration of a building have been begun, but not completed before the appointed day."

The Master of the Rolls, in his judgment, said that in the parlance of the building industry, no doubt "works" would include demolition, excavation, and the like; but, after looking at many sections of the 1932 and 1947 Town Planning Acts, it did not strike him that "works" was intended to include demolition. He would dismiss the appeal.

Lords Justices Jenkins and Morris took a different view. The former said that it was unnecessary, in order to bring the case within Section 78, to point to some work of construction on the site. It was enough if it could be shown that operations had been carried out on the site which were part of the totality of the operations necessary to complete the building. He did so find, and the appeal should be allowed.

Leave to appeal to the House of Lords was granted to the L.C.C.

* Reported in *The Builder* for May 18, 1951.

THEFTS OF METAL

Lord Chief Justice's Comments

THE SERIOUSNESS of the offence of stealing metal from the roofs of churches and other buildings was emphasised by the LORD CHIEF JUSTICE recently when the Court of Criminal Appeal dismissed an appeal by a man against his conviction and sentence of five years' imprisonment at Surrey Quarter Sessions for stealing copper from a mausoleum.

His Lordship said that the offence of which the appellant had been convicted was one which the Court would always regard as very serious. Stripping churches and buildings of lead and copper, and sometimes zinc, was prevalent, no doubt owing to the high price that could be obtained for the metal, and not only was great expense caused to owners of buildings and to parishioners but damage was done to the buildings. Metal thieves apparently experienced no difficulty in disposing of the metal, and the particular attention of the police should be directed towards receivers. The offence was one which should not be dealt with summarily, and it was to be hoped that justices would take notice and commit persons accused of such offences for trial.

The Court would not hesitate to increase a sentence if a proper one was not given. In the present case it had been said that a sentence of five years' imprisonment was severe; the Court, however, had been saying for some time that severe sentences should be given for this type of crime, and in the present case, in particular in view of the appellant's past record, the sentence was one with which the Court would not interfere. The appeal would be dismissed.

"LIVING IN FLATS"

A Housing Centre Discussion

MR. HENRY BROOKE, M.P., a member of the Central Housing Advisory Council Committee which recently issued "Living in Flats," a report on the building, planning and management of this type of dwelling which was the subject of comment in our issue of February 8, opened a discussion on the report at the Housing Centre on April 1.

He said that the building of flats which was now going on in the great cities was throwing up social problems which we might not fully grasp until the flats were part of our environment and it was too late to make radical changes. His committee were surprised to find how little serious study had been given to this important subject in England.

In the discussion ALDERMAN J. ABADY (Westminster City Council) claimed that most of the committee's recommendations had been anticipated by Westminster City Council when they built and laid out what was formerly called the Pimlico Estates and was now named Churchill Gardens. They had mixed up blocks of flats with terraced houses and maisonettes; they had several playgrounds for different classes of people; they did not rely on a formal superintendent but had an estate manager; they had small laundries; there were flats where old people could rest; and they had a tenants' association. He thought the abolition of slums would be greatly hastened if there was a statutory obligation on housing authorities to provide a decanting centre in each area for, say, 50 flats.

MR. E. E. FLETCHER (Heston and Isleworth Borough Council) spoke of the difficulties his authority was experiencing with regard to flat building and of the value of three-storey flats.

The tendency of the report to prefer other forms of accommodation than the three-storey flat was the subject of criticism by MISS JUDITH LEDEBOER.

LIEUT-COL. H. P. CART DE LAFONTAINE suggested the transformation of the National Savings Movement into a national fund for house-building so that a fund could be built up and people be encouraged to own their own homes.

Replying to the discussion, MR. BROOKE said he was concerned that local authorities did not appear to learn in time from their mistakes and those of other authorities and architects.

The committee had not sought to pronounce judgment on the question of high versus low blocks of flats. A great deal depended on what was the local desire. In London there seemed to be a disposition to take it for granted that flats were the only possible form of development which London could manage for the future. Against that, to a surprising extent in provincial cities, there had seemed to the committee to be a prejudice against flats. They saw small cottage development spread out on good agricultural land and covering more and more land five miles or more from the centres of the cities.

There were places in the centres of big cities where we must not be afraid of building upwards, provided that we were thinking all the time of what sort of life was to be lived by the people who were to dwell in those buildings and how we were going to save them from being divorced from what was considered to be the essential British life of the family in the home.

GENERAL ATTENDANCE ON NOMINATED SUB-CONTRACTORS

The Need for A Closer Definition in Bills of Quantities of the Main Contractor's Services

By R. W. HARRINGTON and A. S. HOUSE, AA.RICS,
Chartered Quantity Surveyors

WE have felt for some time that the methods commonly used in bills of quantities for describing the "general attendance" services that a contractor may be required to perform in connection with nominated sub-contractors' works are too lax. A recent examination of a number of contemporary bills prepared by reputable surveyors confirms this view.

It seems the custom to carry forward from bill to bill standardised and generally vague clauses leaving estimators to infer precise details. The weaknesses of this system are obvious; (1) An estimator is unreasonably expected to possess a detailed knowledge of too many specialist trades; (2) different jobs may involve widely differing "general attendance" conditions; and (3) the requirements for any one sub-trade often vary from firm to firm and the estimator rarely knows the name of the firm.

Furthermore we find that estimators frequently have to consult the drawings when pricing a bill and measure for themselves the extent of some of the "general attendance" requirements, e.g., special scaffolding.

We have examined many bills in which p.c. sums for structural steelwork, fixed complete and obviously hoisted by the sub-contractor, are followed by standard "general attendance" items which (by reference back to a clause in the preliminaries of the bill defining "general attendance") instruct contractors to allow for hoisting.

With the tendency for building contracts to contain an ever-increasing proportion of sub-contractors' work, the element of "general attendance" becomes of importance and demands, we feel, reasonably detailed description.

In column A of Table I, various "general attendance" services are set down in abbreviated form; column B suggests where each service may be described in a bill.

SCAFFOLDING AND PLANT

It is appreciated that Table I does not present a perfect solution to the problem of adequately describing "general attendance." The items of scaffolding and plant are particularly difficult.

With scaffolding (the term in this context including staging, trestles, planks, etc.) we have adopted the theory that detailed description is necessary only where scaffolding will not already be in the required position when the sub-contractor commences his work. The fact that such special scaffolding will be available for subsequent operations by the general contractor has been ignored. This suggests an element of "double pricing," and we have posed the problem to a number of contractors but are assured that estimators would readily make allowance for the fact that they had priced with "general attendance" scaffolding which would be available later for their own operations.

With regard to plant, we feel it admissible to expect estimators to price in a general way for sub-contractors' requirements provided the plant is of a standard nature and is likely to be on the site for ordinary operations.

We have heard it said, with some justification, that many of the difficulties with "general attendance" arise from a failure to insist that sub-contractors, when quoting, must allow for providing at their own expense all the plant and equipment they will need and for doing their own clearing up and cleaning down. It has also been said that if it became common practice to give in bills full descriptions of "general attendance," such as we suggest, there would be a tendency for specialists to depend still further on general contractors for materials, plant, labour and services of all kinds. Such considerations are really outside the scope of this article.

It now remains to give examples of the methods we have suggested for describing "general attendance" services. The first example must be the "general attendance" defining clause for the preliminaries, while in Table II examples of general attendance services are set out.

Attendance upon sub-contractors: The term "general attendance" shall be deemed to include the following services:

(*a*) Giving the sub-contractor every facility to enable him to execute his work in a workmanlike manner and in proper order and sequence.

(*b*) Agreeing with the sub-contractor proper and accurate working dimensions and other particulars and for obtaining full information as to the sub-contractor's requirements, with particular regard to chases, recesses, mortices, notchings, holes, perforations, etc., to enable the contractor to make proper arrangements for the execution of the sub-contractor's work.

(*c*) Allowing the free use of plant as may be reasonably required by the sub-contractor and of all scaffolding that the contractor may have erected for his own use or for any other sub-contractor's use.

N.B.—The term "scaffolding" in-

TABLE I

A	B
1. General facilities for proper execution of sub-contractors' work.	General attendance clause in preliminaries.
2. General co-ordinating of sub-contractors' work with general contractor's operations.	General attendance clause in preliminaries.
3. Allowing use of temporary roads or other special facilities for access to site.	The item in preliminaries for temporary roads or other special access facilities to be worded to include for sub-contractors' use.
4. Allowing use of welfare facilities.	The item in preliminaries for welfare facilities to be worded to include for sub-contractors' use.
5. Providing water.	The item in preliminaries for water to be worded to include provision for sub-contractors.
6. Providing electric current.	The item in preliminaries for electric lighting and power to be worded to include provision for sub-contractors.
7. Taking delivery of sub-contractors' materials and plant and unloading.	General attendance clause in preliminaries. (Where a sub-contractor himself takes delivery and unloads, or assists the general contractor to unload, this shall be stated in the general attendance item following the p.c. sum item, or in the p.c. sum item itself.)
8. Storing safely sub-contractors' materials and plant or providing use of storage accommodation or space.	General attendance clause in preliminaries.
9. Returning cases and wrappings carriage paid.	General attendance clause in preliminaries.
10. Hoisting and lowering sub-contractors' materials.	General attendance clause in preliminaries. (Where a sub-contractor hoists his own materials, or operates the general contractor's hoist, or assists the general contractor to hoist, this shall be stated in the general attendance item following the p.c. sum item, or in the p.c. sum item itself.)
11. Hoisting and lowering sub-contractors' plant.	General attendance item following the p.c. sum item.
12. Distributing sub-contractors' materials (e.g. to rooms).	General attendance item following the p.c. sum item.
13. Allowing use of scaffolding, staging, etc., which the general contractor has already erected for his own or other sub-contractor's use.	General attendance clause in preliminaries.
14. Providing scaffolding, staging, etc., not already erected by the general contractor for his own or other sub-contractor's use.	General attendance item following the p.c. sum item giving measurements.
15. Providing plant.	General attendance clause in preliminaries where a sub-contractor's requirements are reasonable. General attendance item following the p.c. sum item where a sub-contractor requires use of special plant which the general contractor is not likely to have on site.
16. Providing unskilled labour to assist sub-contractors.	Special item after p.c. sum item.
17. Providing materials for sub-contractors' use.	Special item after p.c. sum item.
18. Protecting sub-contractors' work from weather.	The item in preliminaries for protecting from weather to be worded to include for protecting sub-contractors, work.
19. Casing or covering to protect sub-contractors' work from accidental damage.	Special item after p.c. sum item.
20. Providing heat for facilitating sub-contractors' work.	Special item after p.c. sum item.
21. Providing fuel, apparatus or labour for testing sub-contractors' work.	Special item after p.c. sum item.
22. Returning sub-contractors' plant and surplus materials to store or to railway station.	General attendance item following the p.c. sum item.
23. Clearing up rubbish caused by sub-contractors.	The item in preliminaries for clearing up to be worded to include for clearing up after sub-contractors.
24. Holes, chases, pointing, carting away spoil, forming drainage sumps, etc., in connection with sub-contractors' work.	Measured items.

cludes staging, trestles, planks, guard rails, toe boards, etc., the altering, adapting and removal thereof and making good permanent work on completion.

(*d*) Taking delivery, unloading and removing to store all sub-contractors' materials, articles, fittings and plant on arrival at the site, providing safe storage accommodation, returning all empty cases, wrapping, etc., carriage paid, and for hoisting and lowering such materials, articles or fittings to the requisite levels and positions in the building except where any of the foregoing services are hereinafter described as being executed by the sub-contractor.

(*e*) Fulfilling any special conditions or requirements with regard to sub-contractor's work described in the items of "general attendance" following p.c. sums.

TABLE II

EXAMPLES OF GENERAL ATTENDANCE SERVICES

Table Ref. : 7, 10

STRUCTURAL STEELWORK

Provide the p.c. sum of £..... for structural steelwork unloaded, hoisted and erected complete by a nominated sub-contractor.

Add for profit.

Allow for general attendance as described in preliminaries.

Table Ref. : 7, 22

FELT TANKING

Provide the p.c. sum of £..... for bituminous felt tanking executed complete by a nominated sub-contractor.

Add for profit.

Allow for general attendance as described in preliminaries and for returning sub-contractor's plant and surplus materials to ..... railway station.

NOTE.—The sub-contractor will assist in unloading materials and plant.

Table Ref. : 12, 19, 20, 22

THERMO-PLASTIC FLOOR TILING

Provide the p.c. sum of £..... for thermo-plastic tiling to floors laid complete by a nominated sub-contractor.

Add for profit.

Allow for general attendance as described in preliminaries including distributing materials to the various rooms ready for laying and returning surplus materials to store (total area of tiling xxx yards).

Allow for providing oil fuel and labour to operate the permanent heating installation or providing temporary portable heaters to ensure a constant room temperature of at least 65 deg. F. for 24 hours prior to, during, and 24 hours following, the laying of the tiles.

Allow for covering up and protecting tiling with clean, dry, non-staining sawdust, renewing as required and clearing away at completion.

Table Ref. : 14

METAL WINDOWS

Provide the p.c. sum of £..... for metal windows fixed complete by a nominated sub-contractor.

Add for profit.

Allow for general attendance as described in preliminaries and for providing "scaffolding" internally and externally to one elevation 50 ft. 0 in. long in two storeys each 10 ft. 0 in. high, composed entirely of windows and to one elevation containing windows 30 ft. 0 in. long in one storey 15 ft. 0 in. high above brick wall.

Table Ref. : 21

HEATING AND HOT WATER INSTALLATION

Provide the p.c. sum of £..... for heating and hot water installation executed complete by a nominated sub-contractor.

Add for profit.

Allow for general attendance as described in preliminaries.

Allow for providing oil fuel and labour to operate the installation for testing.

STEEL DISTRIBUTION

New Housing Ministry Circular

THE Minister of Housing and Local Government has sent a new circular to local authorities and other bodies on the steel distribution scheme. The circular (No. 39/52, dated April 4) refers to Circulars 59/51, 71/51 and 1/52, and states:—

Steel Sheet.—It has been decided that no further Forms M (Sheets) will be issued by or on behalf of authorising departments, all authorisations for steel sheet being covered by I.S. authorisation (G) already in use for other non-alloy steel. I.S. authorisation (G) will be amended by the deletion of the words "all steel sheets and" in column 3 of the table on the front of the form and of general condition 1 (b) on the back of the form, and the amendments initialled. The form will then be available for the acquisition of both steel sheet and other non-alloy steel.

Forms M(Sheets) already issued will not be affected by this change and will remain valid for the acquisition of steel sheet, but not for any other type of non-alloy steel, until the end of the period following that in which the steel sheet is authorised for delivery.

The purposes for which local authorities may issue authorisations from April 1, 1952, for the acquisition of steel sheet will be restricted to work done under licence, as defined in paragraph 4 of Circular 59/51, I.S. authorisation (G) being amended before issue in the manner referred to above. For other housing requirements authorities should apply for I.S. authorisations to the Principal Regional Officer, and for non-housing requirements to the Principal Priority Officer, Ministry of Housing and Local Government, Whitehall, London, S.W.1.

Reinforcement fabric mesh.—Wire rod reinforcement fabric mesh and wire reinforcement fabric mesh have been added to the controlled forms of non-alloy steel and the list given in paragraph 1 of Circular 59/51 should be amended accordingly.

Small quantities exemption.—Certain amendments have been made to the categories of controlled forms of non-alloy steel which may be acquired without authorisation under the small quantities exemption arrangements. A revised list is given in Appendix A to this circular. This should be substituted for the list in the appendix to Circular 1/52.

Products covered by bulk authorisations to industry.—The Ministry of Supply have published an explanatory booklet on the iron and steel distribution scheme entitled "Notes for Consumers, January 1952" (Stationery Office, price 1s.). Appendix III of the booklet contains a list of products for which bulk authorisations of steel are issued to manufacturers and for which consumers should not be given an I.S. authorisation. Appendix B to this circular gives notes on a few items of special interest to local authorities.

Economy in the use of steel.—Because of the need for the utmost economy in the use of steel, local authorities are asked to take all possible steps to prevent any excess consumption both when preparing their own schemes, and when issuing I.S. authorisations for work done under licence. Before applying for, or issuing, an I.S. authorisation local authorities should not only make sure that there is a definite promise of delivery in the period for which the steel is said to be required, but also that the steel is actually needed in that period according to the progress expected to be reached on the site.

Apart from items which are covered by bulk allocations to industry (for example, metal windows, grates and fittings), the weight of steel for the superstructure of the average-sized traditional house should be about 1½ cwt., including rod reinforcement for lintols, but excluding pipes for gas and water services. Cases have come to notice where larger diameter reinforcing rods than is necessary have been specified for lintols; technical officers should ensure that specifications conform with B.S.S. 1239:1945, cast concrete lintols.

Where reinforced concrete raft foundations have to be provided, reference should be made to the relevant section of the Handbook on Mining Subsidence (National Building Studies, Special Report No. 12) (Stationery Office, price 1s. 9d.) which gives examples of the tonnages normally required and indicates that on average the amount needed is about 5½ cwt. per house.

NATIONAL FEDERATION

Awards to Apprentices

THE National Federation of Building Trades Employers announces that the two special prizes for 1951 for selected apprentices who have obtained the Higher National Certificate in Building are awarded as follows:—

Silver Medal, Certificate and cash award of £50—W. J. Bryen (carpenter and joiner), of Abbey Wood, S.E.2 (employer, Messrs. Falkus Bros., Ltd.). *Bronze Medal, Certificate and cash award of* £40—Eric Dearden (joiner), of Bolton (employer, Messrs. S. and J. Hodgkiss Ltd., Farnworth).

These awards have been made under the National Prize and Scholarship Scheme inaugurated by the National Federation in May last year.

Gibraltar Builders

The Gibraltar Master Builders' Association has become affiliated to the N.F.B.T.E.

The number of overseas builders' organisations affiliated to the National Federation is now nine.

S.M.M. for New Zealand

An instance of the way in which the Standard Method of Measurement of Building Works, prepared by the joint committee representative of the Royal Institution of Chartered Surveyors and the National Federation of Building Trades Employers, is used as a basis in other parts of the world is evidenced by the New Zealand Standards Institute's publication of a Standard Code of Practice for Methods of Measurement of Building Works. In the preface to the Code appears an acknowledgment of the original work of the joint committee.

Painters' Secretary Retires

THE L.M.B.A. has sent a donation of 25 guineas to a fund which the National Society of Painters is raising as a testimonial to Mr. V. Beacham, who, at the age of 65, is retiring from the office of London organising secretary of the Society after 38 years' service. In forwarding the cheque, Mr. D. E. Woodbine Parish, president L.M.B.A., paid tribute to Mr. Beacham's service to the industry and his contribution to harmonious relationships between employers and operatives.

Choice of Careers Booklet

The latest booklet in the Choice of Careers series, "The Bricklayer," has been issued by the Central Youth Employment Executive. Copies, price 1s., are obtainable from H.M.S.O., York House, Kingsway, W.C.2.

NATIONAL FUEL POLICY

F.B.I. Recommendations

THE Federation of British Industries has circulated copies of its evidence submitted to the Committee on National Fuel Policy (Ridley Committee). Having pointed out that on present trends the shortage of solid fuel, which is now 10 to 20 million tons, will by 1960-65 have grown to some 50 million tons, the evidence says that the problem is to formulate a policy and to devise plans which will bridge this disparity.

To summarise, the aims of a national fuel policy, it is stated, should be as follows:—

i. To guide and direct the development and production of all forms of fuel and power.

ii. To encourage to the utmost the employment of the different types of fuel and power in those uses for which they are most suitable.

iii. To promote the most efficient use of fuel and power.

iv. To ensure that developments involving the use of fuel and power are in step with their prospective supply.

Economies in Industry

The Federation, it is stated, has for many years actively promoted fuel efficiency amongst its members, through practical advice in the factory and through publications of various kinds, including the recent booklet *Fuel Economy Pays*. The main material obstacle to improving industrial fuel efficiency is shortage of capital due to the combined effect of high taxation and the rising replacement cost of plant in post-war years. Much fuel-burning and fuel-using equipment in industry is obsolete, partly due to the effect of the war.

Methods for encouraging the installation of new plant and the plant replacement of obsolete equipment must be found. Two alternatives are (i) provision by Government of loans repayable over a long period free of interest or at a low rate; and (ii) immediate taxation relief by treatment of approved expenditure as revenue expenses for taxation purposes.

For both alternatives there is the difficulty of deciding which schemes are to be approved for relief or assistance. The Committee may feel satisfied that the decisions can be based on recommendations made by the officers of the Fuel Efficiency Branch of the Ministry of Fuel and Power. The first alternative of Government loans would raise fewer difficulties either of discrimination or of approval than any variation of the principle of equity which should always be the basic consideration in taxation.

The Federation have made proposals to the Royal Commission on Taxation designed to lighten the burden on industry due to the combined effect of high costs and high taxation. Those proposals cover all types of capital expenditure. But the fuel problem is so urgent and serious that remedies must be found at once rather than await the findings of the Royal Commission.

Insulation

Great quantities of valuable heat are being lost, in industry and elsewhere, through faulty thermal insulation or entire lack of it. Insulation of walls, windows, roofs, boilers, furnaces, process-plant and pipe-lines must be encouraged to the utmost. Investment in this direction brings an immediate and continuous return, frequently of substantial size. Once more, however, difficulties of shortage of capital and the effect of taxation allowances are impediments to more rapid progress. Moreover, it is often difficult to secure building licences, and some preference here seems justifiable.

The proposals made regarding financing of new equipment apply with equal force to insulation. The wide and rapid extension of thermal insulation should be a prime object of national fuel policy.

While insulation is an outstanding case of what can be done to reduce heat loss, there is also much room for improvement in lowering losses at every point where heat is used in process work. The cost of this is often small. The realisation of what can be done is largely a question of better education and training of all concerned with the production and use of fuel in factories.

Education and Training

There is need for better education and training of those who deal with fuel and power in industry, from the plant engineer to the boiler-house operative. It is hoped that the Committee will survey the present educational and training facilities with a view to their expansion if necessary.

In particular, the Committee should consider whether in say five years' time a scheme should be established for obligatory certificates of competence for boiler operatives.

Electricity Generation and Use

Our chief concern under this head, the Federation continues, is to be assured of sufficient supplies of electric power in the years ahead and to be rid as soon as possible of peak-load problems. While our main interest is as users of public supply we suggest that the following aspects of generation and distribution of electricity be surveyed by the committee within its terms of reference.

1. In following the policy of building large power stations of the condensing type, based on the desire to secure the utmost economy in the consumption of coal and to make the most effective use of capital expenditure, has sufficient account been taken of the low thermal efficiency of the condensing cycle? Are the consequential disadvantages of location, such as remoteness from industry and coal mines, sufficiently weighed?

2. Has the wider use of generation by back-pressure turbine and steam-engines in industry, linked where suitable to the public supply, been sufficiently encouraged? Has the contribution of auxiliary oil engine generators to the peak-load problem been fully assessed?

3. Has the question of the construction of steam power-stations of smaller size and designed specifically to cater for winter peak loads been examined? Could such plants be located at or near centres of load and operate with lower steam conditions and with less elaborate boiler houses than main base-load power-stations require? Could they be housed in simpler buildings involving a considerable saving in capital and maintenance costs that might offset the increase in fuel costs? To what extent would the location of such stations near industry facilitate the adoption of district heating and/or back-pressure generation of process steam, and also effect savings in transmission costs?

Domestic Fuel

The strict limitation of domestic solid fuel has been a cause of the rapid rise in domestic use of gas and electricity, and it is this rise which has in turn affected industry. Competition in the domestic sphere between gas and electricity has been based in the past on price structures which may not reflect thermal efficiency. In addition, gas and electricity have obvious advantages for casual domestic use. Nevertheless, the Simon Report (Cmd. 6762) states that in terms of "coal economy efficiency" gas ranks at about 30 per cent. and electricity as low as 18 per cent., measured at the point of continuous use.

The Simon Report also stressed the value of modern domestic appliances for solid fuel which are now being more widely used. Increased supplies of suitable solid fuels to the domestic user would encourage the more rapid extension of such appliances. These are some of the important questions which should be examined in devising short-term remedies.

Research

While the British economy has for many years rested on coal and will continue to do so for some time to come Britain cannot afford to lag behind the rest of the world in developing other forms of energy. It is hoped, therefore, that the Committee will examine the question whether a sufficient share of the nation's resources for research and development is being devoted to this question.

REBUILDING AT HAVRE

By B. S. TOWNROE, Hon.A.R.I.B.A.

THE new Maritime Station of the Port of Havre in Northern France is now almost rebuilt, and will be among the finest post-war buildings in Western Europe.

Holidaymakers going to Normandy before the war will, no doubt, remember the high tower nearly 300 feet high, which dominated the whole of the city of Havre. This marked the Maritime Station designed by the French architect, M. Urbain Cassain, and was inaugurated on May 23, 1935, the same day that the transatlantic liner the Normandie was opened to the public.

Air attack on June 14 and 15, 1944, completely destroyed this magnificent example of architecture in reinforced concrete. After the Liberation it became more and more necessary to rebuild, and in January, 1950, the former architect, M. Cassain, together with M. Noel Boutet de Monvel, were entrusted with the preparation of the new design.

Although, as far as possible, full use is being made of the former foundations, it has been found necessary to enlarge the new building, which is about 600 yards long and over 100 yards in depth. The ground floor has been reserved for goods traffic, for both imports and exports. Elaborate arrangements have also been made for dealing with the passenger service and its luggage and for all the necessary services. There are garages for cars, halls for customs officers, shops and an ultra-modern restaurant.

Many of the parts of the building have been prefabricated, some in local workshops and some in the city of Rouen, and sent by rail to the port.

This month the first part of the station is being opened, and it is hoped that it will be finally completed during the course of this summer.

IN PARLIAMENT

Private Licences

On April 1, MR. J. T. PRICE asked the Minister of Housing and Local Government if he had yet been able to say how many local authorities had intimated their intention to apply 50 per cent. of their housing allocation to private licences.

MR. MARPLES, the Parliamentary Secretary, said that this was a matter within the discretion of individual authorities. Information about houses licensed or approved for building by private builders by each authority was given each quarter in Appendix B to the Housing Return.

Protection of Tenants

In reply to MR. W. T. WILLIAMS on April 1, MR. MARPLES said that before properties were derequisitioned local authorities would make any provision that was necessary for tenants who occupied the premises as licensees.

Completion of Schemes

On April 1, MR. SPARKS asked the Minister of Housing and Local Government to what extent the rate of completion of housing schemes had been expedited as a result of the standstill in sanctioning new starting dates for other building work.

MR. MARPLES said it was as yet too early to judge this. It was difficult to isolate the effects of the ban from other effects on the rate of completion. He meant that good weather, the flow of materials, the issue of private enterprise licences, and so on, which might speed-up building, were all factors which must be taken into account.

Housing Standards

On April 1, MRS. EIRENE WHITE asked the Minister of Housing and Local Government what arrangement he had made to inform himself of the number of local housing authorities which required builders of houses under licence to observe the standards laid down by the National Housebuilders' Registration Council, as recommended in the appendix to the circular issued by his department on November 27 last.

MR. MARPLES said that the Minister considered that this was a matter which should be left in the hands of the local authorities.

Treasury Assisted Factories

On April 1, in reply to a question by MR. BROOMAN-WHITE, MR. HENRY HOPKINSON, Secretary for Overseas Trade, made a statement showing the number of new factories and extensions to factories in the Development Areas which were approved in 1951 for inclusion in the factory building programme financed by the Board of Trade. These were as follows:—

Development Areas	*New factories exceeding 5,000 sq. ft.*		*Extensions to existing factories exceeding 5,000 sq. ft.*	
	No.	*Area sq. ft.*	*No.*	*Area sq. ft.*
SCOTLAND	2	136,690	5	391,900
ENGLAND				
North Eastern	2	298,961	5	83,300
West Cumberland	1	34,476	2	16,000
South Lancashire	—	—	1	40,038
Merseyside	4	348,926	—	—
WALES				
South Wales and Monmouthshire	—	—	13	297,553

In reply to a further question by MR. BROOMAN-WHITE, MR. HENRY HOPKINSON made a statement showing the number of new factories and extensions to existing factories for which Industrial Development Certificates were granted in the Development Areas during the year 1951.

Development Areas	*New factories exceeding 5,000 sq. ft.*		*Extensions to existing factories exceeding 5,000 sq. ft.*	
	No.	*Area sq. ft.*	*No.*	*Area sq. ft.*
SCOTLAND				
I.D.C.s granted	18	1,514,133	53	1,427,266
of which:				
Completed	—	—	2	17,452
Under construction	6	781,540	16	798,302
Licensed, but not started	1	10,000	9	234,840
ENGLAND				
North Eastern				
I.D.C.s granted	15	896,991	72	1,859,694
of which:				
Completed	1	7,500	2	27,500
Under construction	4	505,124	28	505,144
Licensed, but not started	2	164,897	13	437,701
West Cumberland				
I.D.C.s granted	1	97,000	5	378,228
of which:				
Completed	—	—	—	—
Under construction	—	—	2	16,000
Licensed, but not started	—	—	1	12,600
South Lancashire				
I.D.C.s granted	4	45,641	17	281,580
of which:				
Completed	—	—	—	—
Under construction	—	—	2	48,880
Licensed, but not started	—	—	—	—
Merseyside				
I.D.C.s granted	14	2,088,526	34	733,626
of which:				
Completed	—	—	1	8,828
Under construction	3	911,704	5	205,962
Licensed, but not started	2	14,945	4	106,411
WALES				
South Wales and Monmouthshire				
I.D.C.s granted	17	270,937	49	1,467,288
of which:				
Completed	—	—	4	182,600
Under construction	4	80,948	14	449,917
Licensed, but not started	4	62,963	4	91,463
Wrexham				
I.D.C.s granted	1	30,462	7	781,696
of which:				
Completed	—	—	—	—
Under construction	—	—	2	741,330
Licensed, but not started	—	—	1	7,500

Rating of Site Values

On April 1, MR. GIBSON asked the Minister of Housing and Local Government when the report of the Committee on the Rating of Site Values would be available.

MR. MARPLES said that the report would be published after Easter.

Removal of Restrictions

On April 1, SIR WALDRON SMITHERS asked the Minister of Housing and Local Government if he would remove all restrictions on the building of houses, except that, while the housing shortage prevails, no house should exceed £1,500 or contain more than three bedrooms, subject always to the submission to local authorities of plans and amenities.

MR. MARPLES said that the Minister hoped progressively to achieve greater flexibility and freedom in the building of houses. They had already made considerable progress in that direction.

In reply to a further question by SIR WALDRON SMITHERS, MR. MARPLES said that the Minister had indicated that if any local authority had unemployed resources of material and labour he would consider granting them further instalments of houses.

Ratio of Licences

On April 1, MR. BRAINE asked the Minister of Housing and Local Government whether, in order to speed the building of houses, he would permit those who wished to build their own, and who possessed all necessary building materials, to do so without a licence.

MR. MARPLES said that, with the increase which the Minister made in the permitted ratio of licences to Council houses, local authorities should be able to deal with any such cases on their merits.

Redevelopment Charge

On April 1, MR. ARBUTHNOT asked the Minister of Housing and Local Government if he would investigate the fact that a substantial number of private house building licences were being returned to local authorities because the applicants could not afford the development charge, and if he would take steps to rectify this position.

MR. MARPLES said that the Minister was already investigating the general question of development charge in all its aspects as part of the review of the financial provisions of the Town and Country Planning Act, 1947.

Halstead Place, Kent

On April 1, SIR WALDRON SMITHERS asked the Minister of Housing and Local Government if he would list Halstead Place, Kent, as a building of special architectural and historic interest, in order to preserve this historic mansion from demolition.

MR. MACMILLAN said that this building had been included in the provisional list for the area which had been given to the local planning authority. He would consider the question of its future in consultation with that authority.

Timber Imports

In reply to a question by MR. HECTOR HUGHES on April 1, MR. HENRY HOPKINSON, the Secretary for Overseas Trade, representing the Chancellor of the Duchy of Lancaster, said that every softwood importer made a monthly return of the contracts he had placed with overseas suppliers and the timber he had imported during the month. Information was thus obtained well in advance about the supplies which would be coming into the country. Appropriate distribution of imports between housing and other uses was secured by the licensing of consumption.

The Painted Hall, Greenwich

On March 26, in reply to MR. PARKER, MR. WINGFIELD DIGBY, Financial Secretary to the Admiralty, said that the Painted Hall, Greenwich, would be open to the public between the hours of 2.30 p.m. and 5 p.m. on Sunday, June 1 next, and thereafter each Sunday until, at least, the end of August.

Painting and Decorating Control

On March 25, in reply to MR. HOWARD JOHNSON, the Minister of Works, MR. ECCLES, said he could not see his way to removing painting and decorating work from licensing control.

WOLVERHAMPTON HOUSING POLICY

Negotiated Contracts with Larger Builders

WOLVERHAMPTON Town Council, at their recent meeting, approved a report from the housing committee on the question of the allocation of future housing contracts to large firms of builders with a view to maintaining continuity of building.

The report stated that it was understood that approximately 50 per cent. of local authorities in the Midland Region arranged their housing programme on the basis of negotiated contracts, the general practice being first to obtain competitive tenders and then to negotiate further contracts on the basis of the prices in the accepted tender. As the prices became out of date by reason of rising costs, continues the report, revised prices were substituted on later negotiations which might take place after one or two extensions to the first contract had been arranged according to the degree of the fluctuation in prices over a period.

Continuity for the Builder

It was possible on this basis to arrange contracts in bulk extending over a number of years, thus ensuring the builder continuity so that he could build up his organisation to the appropriate size.

Wolverhampton housing committee considered this system had much to commend it in the interests of economy and efficiency, and they have approved the policy of letting a much greater proportion of their contracts to larger builders in groups of 100 to 200 houses with an assurance to the builder that his contract will be extended each year for a similar number, or an agreed number, if his progress is satisfactory.

The report concludes that the borough engineer had authorised to arrange for the necessary tenders, which will form the basis of the scheme, to be invited in due course as various sites which are capable of large-scale development become available. This policy, said the report, would result in a reduction in the number of contracts let to small builders, but it was likely that these builders would, in any case, be employed to some extent in the expanding programme of the adjoining district councils.

Smaller Houses Planned

The housing committee also reported that in future it would be necessary to build a much larger proportion of smaller houses than hitherto and they have approved plans of four types of semi-detached houses of somewhat smaller areas than those at present being constructed.

Houses of the following types will be included where appropriate in future Wolverhampton housing contracts: three-bedroom, dining/kitchen, with a net area of 866 sq. ft.; three-bedroom, with through living room (839 sq. ft.); two-bedroom, living/kitchen (700 sq. ft.); and two-bedroom, through living room (632.4 sq. ft.).

Issue of Block Licences

The housing committee recommended the issue of block licences for the first instalment of 42 houses to complete the development of a private estate. Prices on this estate would be £1,650 to £1,750 for semi-detached houses and £2,000 for detached houses.

Building Teachers' Conference

Aspects of Building Education Technique

SPEAKING on the subject of "Building Technique" at a meeting of the Building Teachers' Conference held in London on March 8, at which Mr. H. J. Falkus, M.I.O.B., presided, MR. A. MACLENNAN, B.Sc., director of the Technical Teachers' Training College, Huddersfield, said there was nothing wrong with traditional technique. It was, he said, more a question of application, and he intended to focus attention on those aspects of technique which particularly concerned building education.

So far as general subjects were concerned, Mr. MacLennan condemned lecturing and dictated notes, and asked for the wider adoption of question and answer and discussion methods. The teachers should have a close knowledge of industry and of the history of industry, and the teacher of trade subjects who knew the students' social and industrial background had the best chances of success.

Mr. MacLennan then derided those who said that calculations were introduced to teach logical reasoning or to train memory or persistence. Calculations, he said, were taught to make the young man more effective at his job, and it was necessary to introduce a strong personal motive to make him learn. The important thing was to make the work practical, to bring out its connection with the student's work in industry. Similarly with drawing, it was desirable that a student should learn to read a working drawing, but it was not necessary for him to learn to make one. Slavish copying, aiming at an unattainable standard, was bad. The student learned more from more freedom and variety and from more freehand sketching to increase his interest in what he was doing.

Craft theory was, essentially, applied science and should be taught in such a way as to explain the practice with which students were familiar. The correlation of subjects was a basic requirement of craft teaching, and heads of departments should, Mr. MacLennan insisted, give careful attention to it in drawing up programmes of work. The teachers must take advantage of the practical experience and knowledge which the students possess and, again, encourage discussion.

Finally, he emphasised that the student who would obtain his Full Technological Certificate was not the problem. Teachers must measure their success on the type of craft student who does not, under present conditions, pass any recognised examinations at all but who represents, probably, more than 50 per cent. of all craft students.

In opening the discussion, MR. T. E. SCOTT, the immediate past-president of the Conference, said he found little in Mr. MacLennan's talk with which he could differ. The desire of the student to learn and his respect for the teacher were vital to his progress and, referring to what he had said on previous occasions, Mr. Scott emphasised again that present courses and teaching methods were too academic for a large section of craft students.

"The Use of Visual Aids in the Teaching of Building Subjects" was discussed in the afternoon session. There were seven speakers, each of whom spoke for about 15 minutes and who showed visual aids with the production of which they were concerned.

TIMBER RESEARCH IN 1950

Testing of New Tropical Hardwoods

"FOREST Products Research 1950," published on March 21 by H.M.S.O. for the D.S.I.R. (price 3s., by post 3s. 2d.), describes the fundamental research and advisory work carried out at the Forest Products Research Laboratory, Princes Risborough, during the year.

A large part of the resources of the laboratory was used in the study of tropical hardwoods, most of which were available for use in this country for the first time. During 1949 50 new varieties were imported and in the first nine months of 1950 another 30 arrived. Each timber has to be identified and tested. Identification is important as some of the timbers proved to be known species under new trade names. Most of the timbers, however, were almost unknown here and needed special study to determine their properties and their best uses.

Chemical and anatomical changes take place during the conversion of sapwood into heartwood. As the stopping of the flow of sap is believed to affect the process, an experimental method of effecting this was tried. This was done by girdling the tree so that the sap flow was interrupted without affecting the vitality of the tree. It may be possible in time to speed the formation of heartwood or to increase the proportion of heartwood in commercial timber in this way.

Plywoods

Studies of composite woods included the testing of the durability of plywood adhesives and the classification of adhesives according to their resistance to weather, hot and cold water and micro-organisms.

Glue-setting by means of low voltage heating and by radio-frequency heating has been investigated and work has begun on stray field heating in which, although there is no direct contact between the electrodes and the gluelines, selective heating of the glueline is found to occur.

The value of insecticidal fogs and pentachlorphenol preparations on wood-boring insects was tested and work has begun on the use of ultrasonic power for sterilising insect-infested wood. The mycology section has continued its research into dry rot in buildings, boats and industrial structures. The report also deals with work on the physics and chemistry of wood, timber mechanics and wood preservation. The laboratory dealt with nearly 6,000 inquiries by post and in addition distributed more than 44,000 leaflets on timber problems to industrial and general inquirers.

L.M.B.A.

"Newer Heat Appliances"

IF HOUSEWIVES are to get full value from the modern stoves which they are being urged to instal in order to save themselves labour and the country coal, the stoves known officially as "Newer Heat Appliances," must be properly installed. That means that the builder must fix them, for he alone has the necessary knowledge. In London, the L.M.B.A. has been looking into the subject, and the officers and the area chairmen have been to the Coal Utilisation Council Training Centre at Vauxhall Walk to see the various types of stoves available to the public and to discuss the technique of fixing them with the Council's experts.

The Association has promised full co-operation to the Council in its fuel-saving campaign, and its areas are now making up parties to visit the Training Centre.

PUBLIC HEALTH ENGINEERING

Planning Institute Talk

FROM the many engineering subjects which affect in some way or other the health and wellbeing of the community, LT.-COL. F. G. HILL, C.B.E., M.C., M.Inst.C.E, chose to deal with the services of water supply, sewerage and sewage and refuse disposal when he spoke at the Town Planning Institute on March 6 on "Public Health Engineering."

In referring to water supply, he said that owing to local limitations and increasing demands, it was necessary to conserve our potable water resources, and he went on to suggest ways in which waste could be prevented. His remarks on sewerage included the suggestion that all town-planning students or exponents would be interested in a paper published recently in which Mr. J. W. Henderson, chief engineer of the Hemel Hempstead Development Corporation, dealt with the subject of drainage considerations in the development of a new town. He said:—

"Mr. Henderson stresses the point that planning and drainage should proceed hand in hand and not separately. This I heartily endorse and would say further that the main lines of drainage should be determined at a very early stage of planning, and when the construction stage is reached sewers should come second only to water-supply provisions. I have always advocated the principle of keeping as much surface water as possible from entry into the foul drainage system. In practice this usually means providing a strictly separate system for rural areas and a partially separate system for urban areas.

"I am glad to say that for new development most engineers, both here and in America, now adopt the dual system of sewers as being preferable in every way except perhaps that of initial cost. There are, however, cases where the combined sewerage system is the only one to adopt, such as for low-lying towns like Hull, where natural surface outlets from sewers are not available and also where both sewage and surface water may have to be pumped for final disposal."

Referring to sewage disposal, Col. Hill said: "When planning for sewage disposal, the first matter to consider is whether it should take place locally or form part of a wider organisation dealing with this service. The wider organisations, of which we already have good examples in West Middlesex, West Kent, the new Colne Valley area and the long-established Birmingham Drainage Board, have much to be said in their favour. They eliminate a multiplicity of small sewage-treatment plants, they provide better and usually cheaper treatment for the sewage under a competent staff and simplify the work of river pollution control.

"Refuse collection and disposal," said Col. Hill, "should be of particular interest to the town planner because it affects the design of dwellings, the means of access to them and the amenities of the people, both individual and general. The size and importance of the problem can be gauged from the fact that over 10 million tons of refuse have to be disposed of annually in England and Wales at a cost to-day of about £14m. In addition, some 3½ million tons of debris per annum are removed from our streets at an annual cost, including snow removal, of over £8m. There is, of course, a credit side to this subject, where valuable materials are salvaged.

"The constituents of refuse remain by no means uniform, they vary from town to town, from summer to winter and from period to period, depending on the habits of the people, their economic position and on national conditions. In this fact lies one of the principal difficulties in choosing a method of disposal. The careful housewife can greatly lighten the work of refuse collection by riddling and retaining cinders, by putting vegetable scraps on to the garden compost heap when not collected for pig food and by burning highly putrefactive matter in the kitchen stove."

Discussion

In the discussion which followed, COL. W. S. CAMERON (a past president of the Institute) said he thought that nearly all engineers would agree with Col. Hill in his preference for the separate or partially separate sewage systems. In the case of a large city with a combined system which had gone on being extended owing to unrestricted sprawl and the development of new neighbourhoods, the volume of sewage to be dealt with was continually increasing, resulting in the old system at the centre becoming surcharged during periods of heavy rain. It became increasingly difficult to find outlets for new storm-water overflows and also in their having to be connected to streams whose amenities had hitherto been unthreatened.

MR. J. G. JEFFERSON wondered whether they were not spending a little more than was necessary in having to adhere to standards, codes and regulations, etc., which were now out of date. He thought that some regulations were unnecessary in the light of modern research or were capable of variation. He also wondered whether some of the standards laid down in the Report of the Royal Commission on Sewage Disposal were not capable of some revision.

MR. H. T. HOUGH said refuse disposal was a real problem in Liverpool. A thousand tons a day could become a great headache when they had to consider where they were going to put it. They must investigate some method of grinding it because the holes where refuse could be tipped were getting fewer and fewer. They were in competition with the electricity authority, who also had the problem of trying to get rid of its ash.

ACCIDENTS ON BUILDING SITES

Alleged Contravention of Safety Regulations

TWO accidents occurred at a building site in Percival-street, Finsbury, when L.C.C. flats were in the course of erection. On one occasion a man fell from a hoist and broke his leg. On the second occasion another man fell ten feet from a scaffold and injured his heel.

This was stated at Old-street Magistrates' Court on March 26, when A. E. Symes, Ltd., building contractors, of Carpenters-road, E.15, were summoned for contravening the Building (Safety, Health and Welfare) Regulations, 1948, and were fined a total of £43 and ordered to pay three guineas costs.

It was alleged that the defendant company did not appoint in writing a suitably qualified person specially charged with the duty of exercising general supervision of the observance of the regulations; that such a person's name was not entered on the copy of the regulations at the site; that a hoist was used for carrying persons and that in consequence Edmund Joseph Turner suffered bodily injury; that a hoist was used for carrying people on three other occasions; and that there was a failure to provide toe-boards for a gangway and run from which a person was liable to fall more than 6 ft. 6in., and that in consequence James Calvert suffered bodily injury.

At the outset of the proceedings, Mr. N. E. Porter entered a plea of guilty to one of the summonses only, namely, the one relating to Mr. Turner being injured. During the course of the proceedings, however, counsel entered pleas of guilty to all but two of the remaining summonses, those disputed being the alleged failure to appoint a suitable supervisor and the alleged failure to provide toe-boards.

Outlining the case for the prosecution, Mr. D. S. Gurney, H.M. Factory Inspector, said the summonses against the defendant company, who were big building contractors, all referred to events at one site—the L.C.C. flats just behind St. John-street, Finsbury.

The cases, he went on, fell under three headings. The first dealt with men riding on hoists. This sort of thing—a dangerous practice—was totally prohibited by the regulations. There was no side or fencing to stop anyone falling off and, in fact, a man fell off and broke his leg. The second group of summonses related to the guarding of a scaffold by the use of toe-boards and guard rails, the object being to prevent people and things falling off the scaffold. A man did in fact fall ten feet and he broke his heel. The third group was the failure of the firm to provide a person to supervise the carrying out of the regulations and to see that the person's name was entered on the regulations.

Evidence for the defence was given by Mr. Albert Albone, of Gothic-way, Arlesey, Beds, general foreman in the employ of the defendant company. He said that he had been appointed in writing as the person to supervise the carrying out of the regulations but it was difficult to see that they were carried out. "You can't be everywhere at once," he said, "it's a huge block."

The magistrate: Was it too much for you to do your job as foreman and to supervise and make sure that all these regulations were carried out?—I couldn't very well say it was too much, but it was not easy.

There was a notice on the gate of every barrow hoist that it was not to be used for riding on, and letters were sent to all subcontractors to see that their men did not do so. It was clearly understood that the practice was forbidden.

Mr. Porter contended that Mr. Albone was a suitable person to be appointed as supervisor. As to the accident to Mr. Calvert, he argued that it was for the prosecution to prove that it was the absence of the boards which caused him to fall. Mr. Calvert was going along with a wheelbarrow at the time and it got into a spin. It was the impetus of the twisting barrow which threw him over.

The magistrate, announcing his findings, said he was satisfied that Mr. Albone was not suitable as supervisor in that his other duties prevented him from efficiently seeing that the regulations were complied with. He was satisfied that it was the lack of toe-boards which led to Mr. Calvert suffering injury.

In an address in mitigation, Mr. Porter said the defendant company had a clean record. No doubt they had been a little slack, but it was obviously difficult to check every person using those hoists. Greater care would be taken in future to see that all the regulations were complied with.

DEBRIS ON BUILDING SITES

Some Candid Comments

SOME candid observations on the mess and debris left by the various building trades as they complete their operations are made by "The Chief" in "Cubitts' News" for March 29, issued from the the Liverpool offices of Messrs. Holland & Hannen and Cubitts, Ltd. Under the heading My Point of View "The Chief" states:—

I suppose that it is inevitable that building sites are rarely very clean places and while it is true to say that money begets money, it would seem equally true to say that muck begets muck. Muck is a good old-fashioned English word and accurately covers the quagmire we often experience on sites.

It does seem to me, however, that we take the wholesale mess attached to building processes a little too much for granted and regard it as too inevitable. Particularly is this the case on housing sites where, of course, we have, perhaps, two or three hundred separate building units to deal with. The amount of mud and filth which has to be taken out of a newly built house before it can be lived in seems to be quite excessive.

No self-respecting man would trample through his own house in wellingtons covered in wet mud, but this is precisely what happens in new houses, causing new floors to look old before their time and providing a degree of unnecessary work for the poor unfortunate tenants.

Bricklayers produce a fair amount of debris in brick bats and the waste from breeze or other partition blocks. Usually this waste is thoughtfully dumped in those areas where the tenant will one day hope to grow decent vegetables or flowers. Like tobacco on carpets, no doubt the rubble is good for gardens.

Plasterers are perhaps the worst offenders; they do not seem to be able to operate unless they have a grand and glorious mess outside the houses and, unless tightly watched, will not be too concerned about the excess plastering they do to floors, cills and other surfaces which are not really intended to receive plaster.

After the plasterers come the painters, and they would seem quite resolute in their determination to do the minimum covering or masking of surfaces which have to be kept free of paint. Thus we find paint on all kinds of things which are quite satisfactorily finished to start with—baths, w.c.s, sinks, draining boards, chromium plated taps, electric light switches and plugs, ceiling roses and so on. Rarely does the exuberant painter seem to possess a piece of rag and so once again some unfortunate individual has to spend precious hours in trying to remove the superfluous paint.

In the face of the present housing shortage these may seem to be trivial matters, but the extra effort and thought needed to put these things right would be very, very little. Pride of workmanship should come naturally to anyone who describes himself as a tradesman. Unfortunately, that pride is not as evident as it might be these days and, therefore, other steps will have to be taken to achieve the desired results. We aim to introduce more rigorous stage inspection of work, but more about that some other time.

R.I.C.S. Examinations

The Royal Institution of Chartered Surveyors have issued lists of the successful candidates in this year's Preliminary Examination and Special Test Examination.

DEATH-WATCH BEETLE DAMAGE

Periodic Inspection Urged

MR. E. H. B. BOULTON, addressing the Leeds and District Centre of the Building Societies Institute in Leeds recently, said that the disclosure of the serious deterioration in the timbers supporting the famous Lantern of Ely Cathedral must have caused concern to those responsible for the care and maintenance of the architectural glories of this country, the cathedrals, abbeys and churches among them.

"The death-watch beetle is primarily responsible," he said. "Wood boring species of beetles are now causing damage which probably equals or exceeds the appalling figure already reached by dry-rot of some £20m. a year. The Ely report emphasises the warning that I in my 30 years' experience and other investigators have been making for many years. How often are the timbers in our cathedrals and churches, public buildings—and, indeed, private houses—examined? The answer is: usually when the damage has been done."

Mr. Boulton suggested that a systematic survey should be made periodically, and when the major trouble was overcome such inspection should continue to be carried out at least once every ten years. All cathedral and church authorities would be well advised to start sinking funds to cover these periodical inspections and treatment.

There was now an organisation in the British Wood Preserving Association which sought to stamp out timber diseases throughout the country by properly applied methods of preservatives.

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SOUTH AFRICAN HOUSING

Native Housing Research

APPLICATION of scientific research to South Africa's vast housing problem has resulted in some significant advances so far, said MR. D. M. CALDERWOOD, senior research officer of the National Building Research Institute, Pretoria, in a recent address to the annual congress of the South African Institute of Race Relations in Cape Town.

A planned experimental native township, where 500 houses had been built to a set plan, had been laid out. A second experimental township was now being laid out at Springs. Another advance was the drawing up of plans for standardised types of native houses. Several prototypes had already been built at Witbank and Atteridgeville, Transvaal.

At Witbank a density of 5.3 houses an acre had been achieved, giving development costs (roads, water, sewage, drainage and lighting) of £78 17s. 6d.

Africans Build Own Homes

SEVEN LARGE CITIES in the Union of South Africa have schemes whereby natives, who would otherwise not be able to afford their own homes, are allowed to build their own houses. Most of these schemes are already in practice, while others are to be operated shortly. The cities are: Bloemfontein, Johannesburg, Germiston, Vereeniging, Pretoria, Kimberley and Durban. Bloemfontein was the first city to start an own-house building scheme. Many municipalities also have schemes whereby natives can buy ready-made houses.

The South African Institute of Architects and the Chapter of Quantity Surveyors have made grants of £500 and £250 to the National Building Research Institute to assist a study of native housing problems being undertaken by the Council for Scientific and Industrial Research.

The Skilled Artisan

ONE HUNDRED native houses built by Bantu artisans have been erected in Kimberley by the City Council.

This is part of the projected township of 500 native homes which are to be built by skilled native artisans under European supervision.

The Council is utilising money granted to them by the National Housing Commission to build the houses.

MECHANICAL HANDLING EXHIBITION

"GREATER output at lower costs," is to be the theme of the Third Mechanical Handling Exhibition and Convention to be held at Olympia, London, from June 4 to 14 next, some preliminary details of which are now available.

The exhibits of about 170 firms, occupying 250,000 sq. ft., will include conveyors, elevators, hoists, stackers, cranes, mechanical loaders and shovels, fork-lift trucks, industrial trucks, coal handling plants, overhead runways, aerial ropeways, grain handling plants, wagon tipplers and ancillary equipment.

Outstanding exhibits will include new giant fork lift trucks with a lifting capacity of 5 tons, shown for the first time in Britain.

TECHNICALIA

ARCHITECTURAL DESIGN DATA FOR SOLID FUEL. By J. A. Pinckheard, A.R.I.B.A. (Coal Utilisation Joint Council.) Price 7s. 6d.

THE twofold object of this book is to provide architects with information on the storage of solid fuel in large buildings and to encourage the incorporation of suitable facilities for delivery, storage and handling when new buildings are designed. The author states that with the co-operation of architect, heating engineer and fuel supplier in the early stages of a project there is no technical reason why solid fuel cannot be stored and handled in buildings cleanly and unobtrusively and, in many cases, mechanically.

Mr. Pinckheard points out that the book is not intended to provide the architect with a substitute for the specialist services of the consultant heating engineer. Knowledge by the architect of the plan requirements of boiler rooms and fuel stores, which would enable him to consider them while the design was still at the sketch plan stage, could only make the heating engineer's task simpler; it could not supplant him.

Part of the purpose of the book is to draw attention to labour-saving fuel delivery methods. Notes have also been included on ash removal. The information given, while referring explicitly to certain types of buildings such as schools, hospitals, small factories, hotels and flats, applies to all buildings with the exception of small houses. The book is illustrated with graphs, diagrams, charts and photographs. Two appendices give notes on the construction of retaining walls for open-air storage bays and on the approximate estimation of fuel consumption.

BUILDING FOR INVESTMENT. By Clinton H. Cowgill. (London: Chapman and Hall.) Price 56s.

THE PROBLEMS of building from the point of view of the investor with broad interests in building finance are fully examined in this book. It sets forth the procedures involved in the design, construction, and remodelling of buildings of every type from houses to industrial plants. Professor Cowgill explains the relation of buildings to site, neighbourhood, town or city, metropolitan area, state, and geographical district, together with details on the economics of property investment. Numerous examples are provided with solutions to problems arising from various aspects of building investment. He discusses the where and how of building from the point of view of war, personnel and convenience. There are chapters on all the major building types and on management and modernisation, appraisal, law and ethics, and investment in real estate.

500 QUESTIONS ABOUT PAINTING AND DECORATING, ANSWERED BY JAMES LAWRANCE. (Manchester: The Sutherland Publishing Co., Ltd.). Price 12s. 6d.

ALL the questions answered in this book are "real"—that is, they have not been invented by the author, but have been derived from readers of *The Journal of Decorative Art;* this means that they cover the difficulties involved in the subject in a far more practical way than if they had been written by one man, however wide his experience.

The answers to the questions are concisely written, but sufficiently lengthy to be of real value. The number of instances of faulty decorating and painting that can be seen from a casual glance at so many houses and other buildings is testimony to the need for disseminating knowledge of correct methods and materials, a work in which the book can play a useful part. The comprehensive index provided avoids waste of time in seeking references.

URBAN ESTATE MANAGEMENT. By W. A. Leach, F.R.I.C.S. (London: The Estates Gazette, Ltd.) Price 45s.

THE SECOND EDITION follows the previous publication in confining itself to strictly management problems of the estate manager in a built-up area. Valuation and building construction are considered to be beyond the scope of this book and the treatment of the law of landlord and tenant has been such that previous study and knowledge must be assumed. The original form has been retained, but additional information on town and country planning and rating has been rewritten in the light of new legislation.

CONSTRUCTION WITH MOVING FORMS. By L. E. Hunter, M.Sc., A.M.Inst.C.E. (London: Concrete Publications, Ltd.) Price 7s. 6d.

THE USE of moving forms for the speedy erection of silos, bunkers, and other tall structures in reinforced concrete has now passed the experimental stage, and in this book the author, who has had experience of this class of work, describes non-proprietary methods that are now common practice. Features of the work are the attention given to details and the hints based on experience for ensuring that the work will proceed without interruption. Horizontally travelling forms for sewers, culverts, sea-walls, and so on are also dealt with.

THE DESIGN OF PRISMATIC STRUCTURES. By A. J. Ashdown. (London: Concrete Publications, Ltd.) Price 8s.

A NEW and economical method of designing sloping reinforced concrete slabs for pitched roofs, the bottoms of bunkers, and other purposes is fully described in this publication, together with examples. It is claimed that this type of construction has several advantages compared with the thin curved "shell" roofs which are now becoming popular. These advantages include cheaper shuttering, the fact that some parts can be precast, and that the formulæ and calculations are much simpler. The relaxation method of solving equations is also described.

JUNIOR PRINCIPLES OF QUANTITY SURVEYING. By Reginald D. Wood. (London: The Estates Gazette, Ltd.) Price 35s.

THIS PUBLICATION is intended to answer the need for a book dealing exclusively with working-up and final accounts. The quantity surveying example chosen for the text is that of a building costing about £12,000, the principles set forth for one of any size, requiring merely the allocation of space on the abstract sheets in accordance with the size of the contract. Examples at the end of each chapter supply students with material to practise the principles derived from the text. Both the appendix and certain of the chapters embody the usual reference tables, together with other useful memoranda. Care has been taken throughout to avoid controversial matter, and the book has been written from the standpoint of leading London practice.

DRAINAGE AND SANITATION. By B. H. Blake and W. R. Jenkins. (London: B. T. Batsford, Ltd.) Price 15s.

FRESH INFORMATION and illustrations have been added in this tenth revised edition to bring the work into line with the latest practice. This book is intended primarily as an introduction and the subject has been dealt with in a systematic manner. There are many conditions which should be fulfilled in a really healthy building. Practical solutions and ideas of satisfying these essential requirements have been provided in the text, along with numerous clear diagrams.

Examples have been given and reference made to legal and official rulings on drainage and sanitation.

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BOOKS RECEIVED

DECORATION AND FURNITURE. Vol. 1. By Bruce Allsopp. (London: Sir Isaac Pitman and Sons, Ltd.) Price 75s.

THERMAL PROPERTIES OF BUILDINGS. By N. S. Billington, M.Sc. (London: Cleaver-Hume Press, Ltd.) Price 25s.

1952 PRICED SCHEDULES. (London: T. V. Hutchins.) Price 63s.

ARCHITECTURAL AND ENGINEERING LAW. By B. Thomson. (London: Chapman and Hall.) Price 56s.

LONDON HOMES. By Ralph Dutton. (London: Allan Wingate (Publishers), Ltd.) Price 15s.

URBAN ESTATE MANAGEMENT CUMULATIVE SUPPLEMENT. 2nd Ed. By W. A. Leach. (London: Estates Gazette, Ltd.) Price 10s. for sale only with main volume, price 57s. 6d.

ARCHITECTURE: 5,000 YEARS OF BUILDING. By Joseph Watterson. (London: George Allen and Unwin.) Price 45s.

WOODWORKING MACHINERY. By R. H. Hordern. (London: Sir Isaac Pitman and Sons, Ltd.) Price 15s.

ARCHITECTS' YEAR BOOK. (London: Elek Books, Ltd.) Price 42s.

THE LAW RELATING TO BUILDING AND ENGINEERING CONTRACTS. By W. T. Creswell, K.C. Revised by T. R. Davies. (London: Sir Isaac Pitman and Sons, Ltd.) Price 30s.

∴ *Books reviewed in these columns may be obtained on application to the Book Centre, "The Builder," 4, Catherine-street, Aldwych, W.C.2. Cash (which should include 6d. to cover postage and packing) should accompany the order.*

NEWS IN BRIEF

A.U.B.T.W. Delegate Conference

The report of the twenty-fourth national delegate conference of the Amalgamated Union of Building Trade Workers, held at Torre Abbey, Torquay, in July, 1951, has been published. It contains an introduction by Sir Luke Fawcett, O.B.E., General Secretary, The Builders, Crescent-lane, South Side, Clapham Common, S.W.4.

Chester Development Plans

The Minister of Housing and Local Government has approved, with modifications, the development plans for the City of Chester and for a neighbouring area consisting of Hoole Urban District and parts of Chester Rural District. The plans, as approved, will be made available for public inspection.

E.J.M.A. Council Meeting

Amongst the matters discussed by the English Joinery Manufacturers' Association, Sackville House, 40, Piccadilly, W.1, at their council meeting on March 26, were the steps which the Association has taken with regard to the shortage of metal so far as hinges and hardware for joinery are concerned and also the effect on costs of the increased price of petrol.

Cold and Hot Water Services

The Institute of Plumbing have compiled and published a minimum specification for the "Installation of Cold and Hot Water Services" with an appendix on pipe sizing. Copies of this well-produced and informative booklet can be obtained from the Secretary, H. Blackman, B.Sc., Institute of Plumbers, 81, Gower-street, W.C.1, price 5s., post free.

Increase in Housing Applicants

In accordance with the usual practice, applicants on the Wolverhampton Corporation waiting list for houses who did not re-register their application during the year 1951 have been removed from the "live" waiting list. The number of such applicants was 472. Despite the fact that during 1951 669 houses were completed and handed over for occupation, the number of applicants on the waiting list at December 31 last was 5,839, an increase of 455 over the 1950 figure. At the end of January, 1952, the total of new corporation houses provided in Wolverhampton since the end of the war was 4,124.

Conference Research

The Road and Building Materials Group of the Society of Chemical Industry is organising a whole day conference on April 17 next, on the application of the research reviewed at the Building Research Congress, 1951. It will have particular reference to papers presented to Division 2 of the Congress. Those proposed for discussion at this Conference are: (1) general trends in the application of research in building materials; (2) influence on practice of the performance of burnt clay products in structures; (3) the extent to which concrete quality control is being applied and the results thereof; (4) the use of lightweight concretes; (5) modern improvements in stone housing; and (6) the use of alternative varieties of timber, and the durability of flooring. Further particulars can be obtained from the General Secretary of the Society at 56, Victoria-street, London, S.W.1.

Hemel Hempstead's 1,000th House

At the end of March, 1952, Hemel Hempstead new town had completed 1,003 houses. On April 23, Mr. Ernest Marples, Parliamentary Secretary to the Minister of Housing and Local Government, will hand over the key of the Corporation's 1,000th house to its tenant. The Queen is to lay the foundation stone of Adeyfield Church, Hemel Hempstead, on Saturday, July 19.

New Swedish Window Frames

Aluminium-coated window frames with a potential maintenance-free life of 75 years have been constructed by the Swedish architect Eric Sigfrid Persson, known as the inventor of the full-view window. The new frame will have built-in venetian blinds, invisible when hoisted, and rounded lower corners for easy dusting. Named the Elumin window, this model is expected to become a new Swedish export article.

Plastering Apprentices Award

With the object of encouraging a high degree of efficiency and skill among plastering apprentices, two Liverpool apprentices have been presented with vouchers announcing them as winners of complete sets of plasterers' tools. The awards were made by the National Federation of Plastering Contractors. The winners of the awards were E. J. Moorcroft, of Liverpool, and E. J. Reader, of Huyton, who are serving their apprenticeship in the city.

Lighting Engineers' Meeting

Papers to be read during the summer meeting of the Illuminating Engineering Society, which takes place at Eastbourne from May 20 to 23, include, "Interior Lighting Developments in the Netherlands," by Mr. L. C. Kalff (May 22); "Lighting in the Design of Schools," by Mr. A. Pott, of the architects and building branch, Ministry of Education; and "The Design of Interior Lighting Equipment," by Mr. L. H. Hubble (May 23).

LOOK FOR THESE POINTS IN SLIDING DOOR GEAR

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Films on Plumbing

The London and Home Counties' Regional Advisory Council for Higher Technological Education has published, in collaboration with the Scientific Film Association, a catalogue of educational films in connection with plumbing. Copies, price 2s. 6d., may be obtained from Tavistock House South, Tavistock-square, W.C.1.

Luncheon Scheme

For the benefit of shop and office workers in the central London area, J. Lyons and Co. are now operating a meal voucher scheme under which employers with premises within a radius of one mile of Piccadilly Circus may buy vouchers in bulk on a weekly or monthly basis on behalf of their employees, each of whom will get five mid-day meals a week for a maximum of 15s.

New Irish Block-making Plant

A new plant nearing completion at Carrick-on-Suir, County Tipperary, will turn out, it is claimed, sufficient pre-cast concrete blocks for the erection of 1,000 houses yearly. Sir Richard Onslow, who is chairman and managing director of Unicast, Ltd., who are building the factory, said in Dublin recently that the plant would be officially declared open in May, but production would begin well before the opening ceremony.

Diplomas in Management Studies

The arrangements in connection with the award of diplomas in management studies for students in establishments for further education, which have been been provisionally agreed between the Ministry of Education and the British Institute of Management, are explained by the Ministry in Administrative Memorandum No. 411, copies of which have been sent to the local education authorities and colleges of further education.

EXHIBITION OF WORK

Polytechnic Students' Prizes

AN EXHIBITION of craftwork by students of the Northern Polytechnic, Holloway, was held on March 27, and prizes were awarded to apprentices who attend part-time day classes in the Department of Architecture, Surveying and Building. The proceedings were opened by Mr. R. L. Roberts, C.B.E., chairman of the Governing Body of the Polytechnic.

MR. T. E. SCOTT, Head of the Department, presented a brief report on the session's work, and referred to the opportunities available to those students who persevered with their studies and completed the courses of instruction which were available at the Polytechnic and other technical colleges.

The prizes were presented to successful students by MR. ANGUS BUNTING, past-president of the Federation of Master Builders. In an address to students, Mr. Bunting emphasised the importance of all members of the building industry and said that every task, however small it might appear, was an essential contribution towards the success of any building undertaking. The ability and enthusiasm to do simple things well was an essential step towards ultimate success.

PERSONAL COLUMN

MR ERNEST G. CRAIG, director of W. H. Caldwell and Co., Ltd., of Bootle, has been elected president of the Liverpool Timber Trade Association, Ltd., and MR. H. W. CHURCHILL (partner in C. Leary and Co., timber agents, London and Liverpool), has been elected vice-president.

TRADE NEWS

Metal Windows and Doors

Information on current window design and data tabulated for reference are combined with details of typical installations in a catalogue issued by the Standard Metal Window Co., entitled Purpose Made Windows and Doors.

New Red Lead Primer

A new type of red lead primer, Evo-Led, has been produced by Evode, Ltd., Stafford. It is claimed to be suitable for application to damp or even wet surfaces because it absorbs the moisture and allows it to evaporate together with the solvents during drying.

Industrial Equipment

A descriptive catalogue (including prices) of a selected range of products available, has been issued by W. C. Youngman, Ltd., Manor Royal, Crawley, Sussex. The range includes hand-lift and mechanical trucks, factory trailers, stackers, ladders, trestles, wheelbarrows, etc.

Plant Machinery

Alan R. Davies, Clyde-lane, Bristol, 6, in an article on the W1400 walking dragline, which appears in their Plant Finder bulletin No. 78, refers to this excavator as the "colossus of Corby." This bulletin also contains information on the Chaseside light excavator and Saga junior power winch and scaffold jib.

New Super-Grid

The first section of the British Electricity Authority's new 275 kV Super-Grid between the new Staythorpe power station and Barnby Moor in Yorkshire has been completed. It is the first 275 kV overhead line to be erected in this country and the first to use duplicate conductors. It will reinforce the existing 132 kV national grid system and was constructed by British Insulated Callender's Construction Co., Ltd., 21, Bloomsbury-street, W.C.1.

Technical Literature on Zinc

Volume nine of the Z.D.A. Abstracts, a review of recent technical literature on the use of zinc, has been published by the Zinc Development Association, Lincoln House, Turl-street, Oxford. This recent issue contains brief summaries of the productivity reports by the Anglo-American Council on Productivity dealing with hot-dip galvanising and welding in addition to the usual abstracts on current publications concerning zinc and its products.

"Siamese Twin" Tractor

A 270 h.p. tractor has been produced by joining two Caterpillar D.8 tractors together and using only one set of tracks. The union called for few modifications of the two D.8 models. Inside tracks and final drive were removed and the two tractors bolted together at the final drive housings. A specially made plate was mounted on the back of the housings for greater rigidity, and linkages were made to synchronise the controls. This 52-ton machine has been designed for clearing dense brushwood which has been a special problem in the pasture lands of many middle-western States in America.

NEW COMPANIES

THE FOLLOWING NEW COMPANIES, registered in England, have been announced by Jordan and Sons, Ltd., company registration agents.

A. Hunt and Co. (City), Ltd. (505118). Regd. March 6, 3, Bull's Head Passage, Gracechurch-st., E.C.3, bldrs., etc. Nom. cap.: £10,000. Dir.: G. E. Hunt, 87, Devon-rd., Cheam, Surrey.

J. Cranstoun and Sons, Ltd. (505154). Regd. March 6, 201, Sydenham-rd., S.E.26, bldrs., etc. Nom. cap. £100. Dir.: J. E. Cranstoun, 72, Adamsrill-rd., S.E.26.

Fortidec, Ltd. (505224.) Regd. March 8, Walpole Way, Walpole-rd., S.W.19, bldrs., etc. Nom. cap.: £1,000. Dir.: C. W. Pool, 79, Waddon Park-ave., Waddon, Croydon, Surrey.

Thomas Rixon & Son, Ltd. (505,397.) Regd. March 10, 27a, New-rd., Croxley Green, Herts, bldrs., etc. Nom. cap.: £500. Dir.: Mary C. Rixon, 17, Copthorne-rd., Croxley Green.

W. H. Newark & Co., Ltd. (505299.) Regd. March 10, bldr. and decorator. Nom. cap.: £2,000. Dir.: W. H. Newark, 27, Orchard-rd., Surbiton, Surrey.

Dennis Oliver, Ltd. (505314.) Regd. March 11, 203, Mitcham-la., Streatham, S.W.16, bldrs. and contractors, etc. Nom. cap.: £1,000. Dir.: D. F. Oliver.

W. H. Cave & Son (Bozeat), Ltd. (505339.) Regd. March 11, 81, London-rd., Bozeat, Wellingborough, Northants, bldrs., carpenters, etc. Nom. cap.: £3,000. Dir.: W. H. Cave, 83, London-rd., Bozeat, Wellingborough.

L. N. Wiles, Ltd. (505341.) Regd. March 11, 9, Cherington-rd., Hanwell, W.7, bldr. and decorator, etc. Nom. cap.: £500. Dir.: H. S. Wiles.

C. A. Fields, Ltd. (505350.) Regd. March 12, 271, Green-lanes, Palmers Green, N.13, bldrs., etc. Nom. cap.: £1,000. Dir.: C. A. Fields, 20, Aldermans-hill, N.13.

Deavin Builders, Ltd. (505351). Regd. March 12, Hill View Works, Wickford-rd., South Woodham, Essex. Nom. cap.: £3,000. Dir.: W. A. Deavin, "Nil Desperandum," Wickford-rd., S. Woodham.

George Catterall & Sons, Ltd. (505354.) Regd. March 12, 195, Bolton-rd., Adlington, Lancs, bldrs., contractors, etc. Nom. cap.: £30,000. Dir.: G. Catterall, Briarfield, Bolton-rd., Anderton, Lancs.

Harry G. Dufton (Builders), Ltd. (505356.) Regd. March 12, 313, Broad-la., Bramley, Leeds. Nom. cap.: £5,000. Dir.: H. G. Dufton.

Arthur Tester, Ltd. (505384). Regd. March 13, 312, Bexhill-rd., St. Leonards-on-Sea, Sussex, bldrs. and contractors, etc. Nom. cap.: £1,000. Dir.: A. Tester.

David Hartog, Ltd. (505397.) Regd. March 13, 168, Harold-rd., Plaistow, E.13, bldrs. and contractors, etc. Nom. cap.: £1,000. Dir.: D. Hartog.

F. Mitchell & Son, Ltd. (505405.) Regd. March 13, 51, Calthorpe-rd., Edgbaston, Birmingham, 15, bldrs., etc. Nom. cap.: £1,000. Dir.: J. W. Mitchell, 108, Belchers-la., Birmingham, 8.

A. T. Price & Son, Ltd. (505464.) Regd. March 14, 1, Horace-rd., Barkingside, Ilford, Essex, bldr. and decorator. Nom. cap.: £1,000. Dir.: A. T. Price.

Wallbrooks (Contractors), Ltd. (505523.) Regd. March 14, 2, Thorne-ave., Flixton, Lancs, bldrs., contractors, etc. Nom. cap.: £3,000. Dir.: J. A. Brooks.

S. J. Foot, Ltd. (505512.) Regd. March 14, Bell-st., Whitchurch, Hants, bldrs. and contractors, etc. Nom. cap.: £200. Dir.: S. J. Foot, 13, Batchelors Barn-rd., Andover, Hants.

R. W. Brading, Ltd. (505644.) Regd. March 18, 202, South Lambeth-rd., S.W.8, bldrs., contractors, etc. Nom. cap.: £2,000. Dir.: A. J. Barnett, 90, Motspur Park, New Malden, Surrey.

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THE SCOTTISH BUILDER

Scotland's Building Bye-laws

THE RT. HON. JAMES STUART, M.P., Secretary of State for Scotland, has set up a Working Party to revise the model building bye-laws for burghs and counties. He has instructed the Working Party to pay particular attention to changes in building standards and techniques in this and other countries, and to the need for economy in the use of materials.

The members of the Working Party, who have been nominated to represent the three associations of local authorities, the Ministry of Works, the Scottish Special Housing Association and the Department of Health for Scotland, are: R. Woodcock, A.R.I.B.A., A.M.T.P.I. (chairman), J. M. M. Anderson, A.R.I.B.A., G. M. Campbell, A.R.I.A.S., W. P. Haldane, M.B.E., B.Sc., M.I.C.E., M.T.P.I., A. Y. Hamilton, A.R.I.C.S., A. I. D. Macdonald, A.R.I.B.A., John Penman, B.Sc., and T. B. Pollock. The secretary is Mr. J. McCorquodale, Department of Health for Scotland, St. Andrew's House, Edinburgh, 1.

Scottish Questions

SPEAKING in the House of Commons on March 25, MR. MANUEL asked the Secretary of State for Scotland if he would give an estimate of the total additional statutory burden which Scottish local authorities would have to bear by virtue of their housing statutory rate contribution being increased, based on the total allocation of houses for 1952.

COMMANDER GALBRAITH, Joint Parliamentary Under-Secretary of State for Scotland, said at the current rate of building by Scottish local authorities, the proposed increase in the statutory rate contributions would involve an additional annual contribution of about £125,000 from the rates. On the same basis, the estimated additional Exchequer liability would be about £330,000.

MRS. MANN asked the Secretary of State for Scotland whether local authorities had power under his regulations to acquire existing houses which may be vacant; and if they might so acquire without the obligation to modernise such houses.

COMMANDER GALBRAITH said that the power was contained in Section 62 in the Housing (Scotland) Act, 1950.

MR. J. TAYLOR asked the Secretary of State for Scotland if he would take increased powers to deal with house property which had been abandoned by the owners and was falling into disrepair.

COMMANDER GALBRAITH said that local authorities already had powers under the Housing and other Acts to acquire and improve such properties, to have them repaired, or to have them closed or demolished. The Secretary of State would be prepared to consider any suggestions.

MR. GRIMOND asked the Secretary of State for Scotland if, when he was considering further grants for rural housing, he would consider further assistance for croft housing and housing on small owner-occupied farms.

MR. SNADDEN, Joint Parliamentary Under-Secretary of State for Scotland, said this would not be overlooked.

NEW BUILDINGS

Aberdeen.—Corporation to have plans prepared for new jun. sec. sch., to be erected at the Northfield housing site. The architect is Alexander B. Gardner (F.), Municipal Offices, Broad-st., The Castlegate, Aberdeen.

Arbroath.—Corporation to erect 12 shops in Seaton-rd., for which the architect is George H. Rodger, Council-chbrs., Arbroath.

Argyll.—C.C. propose alterations and additions to Dunoon Grammar school. Plans by County Architect, County Offices, Dunoon.

Bellshill.—Lanarkshire C.C. have a new development scheme on hand for 150 houses. Plans are to be prepared by Samuel MacColl (F.), County-chbrs., Beckford-st., Hamilton.

Cambuslang.—Lanarkshire C.C. are to erect 36 houses at The Cairns housing site, 2nd and 3rd development, for which the architect is Samuel MacColl (F.), County-chbrs., Beckford-st., Hamilton.

Crawford.—Plans in hand for new workshops and other additions to be erected at "Thomson's Garage," for which the architect is H. S. Paterson, Marchfield, Crawford.

Dundee.—Corporation is planning a new cleansing department unit at Marchbanks, Lochee. The project will include garages, workshops, offices and a waste disposal works. Est. cost is £250,000.

Edinburgh.—Warrant granted Ferranti, Ltd., at Dean of Guild for extension of existing factory at junction of Ferry-rd. and Crewe-rd., N., at a cost of £36,500. Plans by Fairbrother, Hall & Hedges, 27, Rutland-sq., Edinburgh.

Warrant granted MacTaggart & Nickel, Ltd., for the erection of bank premises with dwelling house at Boswall Parkway. Plans by Stewart, Kaye & Partners, 14, Hill-st., cost £5,000.

Warrant granted Murrayfield Ice Rink and Sports Stadium, Ltd., for alterations and reinstatement of sports stadium at Murrayfield, at a cost of £30,000. Plans by T. Waller Marwick, 7, St. Colme-st., Edinburgh.

Edinburgh.—New research laboratory to be erected by The National Coal Board, at Glasgow-rd., Corstorphane West, from plans by their own architects.

Glasgow.—Corporation propose construction of new entrance, depot office, and canteen at Govan Cross Underground, for City Transport dept.

Glasgow.—Plans to be prepared for alterations and additions, etc., to be carried out for James Craig, Ltd., at St. Vincent-st., Glasgow, W.C.2. The architects are Clarke, Bell & J. H. Craigie (FF.), 227, Bath-st., Glasgow, W.C.2.

Glasgow.—Plans to be prepared by their own architects for extensions and other additions at Swanston-st., Dalmarnock-rd., for Mayor & Coulson, Ltd., 47, Sedan-st., Glasgow.

Greenock.—Plans to be prepared for new halls with heating chamber and other offices, which are to be erected at Bawhirley-rd., from designs by the Salvation Army architects, 21, Rutland-st., West-end, Edinburgh.

Greenock.—Plans in hands of their own architects for three bungalows, garages, etc., which will be erected by Archibald C. Fletcher, Ltd., 3, George-sq., Greenock.

Lanarkshire.—Plans to be prepared for new annexe and other additions at Lawmoor Agricultural School, East Kilbride. The architect is John MacNab (F.), 129, Bath-st., Glasgow, W.C.2.

Renfrew.—C.C. to build 30 houses at Newton Mearns, 20 at Thornlibank, and 32 at Kilnacolm.

Roxburgh.—C.C. propose extensions to technical subjects block at Hawick High sch.; erection of two additional classrooms at Denholm sec. sch.; alterations and additions to provide old people's home at Deanfield, Hawick; and alterations to two houses at Sprouston Cottages, Newtown St. Boswells.

Selkirk.—C.C. propose erection of sch. at Gala Policies, Galashiels. Plans by J. & J. Hall, architects, Ladhope Vale, Galashiels.

FUTURE CONSTRUCTION

PUBLIC APPOINTMENTS

Full details of Public Appointments open will be found in the Advertisement pages of this and previous issues.

CONTRACTS OPEN

For some contracts still open but not included in this list see previous issues. Those with an asterisk are advertised in this number. The dates at the heads of paragraphs are those for the submission of tenders; a dagger (†) denotes closing date for applications; the name and address at the end refer to the person from whom particulars may be obtained.

BUILDING

APRIL 15.

***Thurrock U.D.C.**—70 houses at Stifford Clays. E. & S. Dep. £2 2s.

***†Wood Green B.C.**—Four shops and 28 flats at Lordship-la. B.E. & S. Dep. £2 2s. Tenders by April 30.

APRIL 17.

***†Hayes and Harlington U.D.C.**—96 dwellings at Barnhill estate. E. & S.

***†Hove B.C.**—24 flats at Sunninghill estate. B.S., Town Hall. Tenders by May 19.

***†Isle of Ely T.C.**—Additional accommodation at Parsons-la., Littleport, County A., March. Tenders by May 5.

APRIL 18.

***†Birmingham T.C.**—16 maisonettes and six flats at five sites. City E. & S., Civic Centre. Dep. £2 2s. (each site).

***†Birmingham T.C.**—Doctors' houses at Packington-ave., Shard End estate, and Edgwood-rd., Rednac. City E. & S., Civic Centre. Dep. £2 2s. (each contract).

***†Newcastle Regional Hospital Board.**—Erection of new ward block at City General Hospital, Carlisle. N. Edgar, A.R.I.B.A., Divisional Architect, 1, Lonsdale-st., Carlisle.

APRIL 18.

***†Oxford Cottage Improvement Society, Ltd.**—20 flats at Northway. H. Cooper & Sons, surveyors, Frewin-hse., 51a, Cornmarket-st.

APRIL 19.

***†Walthamstow B.C.**—Three bungalows and four flats at Western-rd. and Shernhall-st. Boro' A., Town Hall. Dep. £2 2s. Tenders by May 7.

APRIL 21.

***†Wellington (Salop) R.D.C.**—Ten houses each at Ellerdine and Crudgington. W. B. Bond, quantity surveyor, 1-3, Newhall-st., Birmingham, 3. Dep. £3 3s.

APRIL 22.

***†Cambridge T.C.**—Six shops and six flats at Wulfstan-way, Queen Edith's-way. City E. & S. Dep. £3 3s.

***Hunts C.C.**—Two houses and four bungalows at Great Stukeley. County A., Huntingdon.

APRIL 25.

†Chigwell U.D.C.—16 flats and 22 maisonettes at North Loughton. White and Mileson, architects, Old Station-rd., Loughton, Essex.

APRIL 28.

***Altrincham B.C.**—88 houses at Broomwood estate. B.S. Dep. £5 5s.

***Bootle C.B.**—78 dwellings at Rimrose-rd. site. B.S., Town Hall. Dep. £2 2s.

***Durham County Police Authority.**—Erection of proposed superintendent's house at Briar Walk, Blackwell, Darlington. G. R. Clayton, F.R.I.B.A., Court-la.

***Letchworth U.D.C.**—Construction of old persons' clubroom and alterations to existing conveniences at Howard-gdns. E. L. Johnson, E. & S. Dep. £2 2s.

APRIL 30.

***Gosforth U.D.C.**—26 dwellings at South Gosforth Farm estate. E. & S. Dep. £1 1s.

***Teignmouth U.D.C.**—10 houses at Inverteign. T. W. Lee Edwards, Council Offices. Dep. £2 2s.

***Wallingford R.D.C.**—34 houses and eight bungalows at Newlands estate. Beecher and Stamford, architects, 14, Park End-st., Oxford. Dep. £2 2s.

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N. Jack & Co., Newcastle
R. W. Purdie & Co.
South Western Flooring Co. Ltd., Totnes
Zeta Wood Flooring Co. (1910) Ltd.,

MAY 1.

***†Epping U.D.C.**—32 houses at Beaconsfield estate. S. Dep. £2 2s. Tenders by May 27.

MAY 5.

***Great Yarmouth C.B.**—64 dwellings at Middlegate-st. B.E.

***Haslingden B.C.**—Eight flats at Bury-rd. J. Mason, B.E. & S. Dep. £2 2s.

MAY 7.

***Ploughley R.D.C.**—Four houses at Launton. E. & S., Waverley-hse., Bicester. Dep. £2.

MAY 10.

***Birmingham T.C.**—Repairing a large roof over former pig market site at Montague-st., Bordesley. W. H. Andrews, general manager, Salvage Dept. Dep. £2 2s.

***Bungay U.D.C.**—36 flats, adjoining Hillside-rd. Buckingham and Berry, architects, 10, Thorpe-rd., Norwich. Dep. £1 1s.

NO DATE.

***Beddington and Wallington B.C.**—Supply and erection of sectional buildings for sports pavilion at Round Shaw recreation. B.E. & S.

***Ongar R.D.C.**—42 houses, Shelley estate. E. & S., Bowes Field, High-st., Chipping Ongar. Dep. £2 2s.

PAINTING, ELECTRIC LIGHTING, MATERIALS, ETC.

APRIL 19.

***†Swansea C.B.**—Heating and water services at West Penlan sch., Penlan. Boro' A. Dep. £2.

APRIL 21.

***Leyton B.C.**—Painting and repairs to sch. B.E. & S.

***†Wimbledon B.C.**—External repainting of flats at Moffat Court, Gap-rd. B.E., Town Hall. Dep. £2 2s.

APRIL 22.

***Chingford B.C.**—Supply of 300 gallons of paint. Francis J. O'Dowd, Town Hall.

***Durham C.C.**—Furniture and fittings, Stockton-on-Tees Technical College. A. A. Denholm, Director of Education, Durham.

APRIL 23.

***Cheeham U.D.C.**—Exterior painting of 154 houses. W. B. Mitchell, E. & S. Dep. £1 1s.

APRIL 26.

***†Bedfordshire Ed. Com.**—Installation of heating, hot and cold water and gas services to Ampthill-Flitwick S.M. sch. County A., Shire Hall, Bedford.

MAY 1.

***Worcestershire C.C.**—Electrical services at new sec. sch. at Evesham. A. F. Myers and Partners, consultant engineers, 147, Victoria-st., London, S.W.1. Dep. £2 2s.

MAY 2.

***Cheshunt U.D.C.**—Repairs and external repainting to three blocks of flats at Balmoral-cl. E. & S. Dep. £2.

MAY 14.

***Wandsworth B.C.**—Removal of existing petrol pump and installation of new electrically operated petrol pump and other work at Putney depot, Ashlone-rd., S.W.15. B.E. & S.

ROADS, SEWERAGE AND WATER WORKS

APRIL 24.

***St. Helens E.C.**—Improvements to four sch. playgrounds. N. F. Newbury, Director of Education, Education Office. Dep. £2 2s.

MAY 5.

***Corporation of Trinity House.**—Paving works at Blackwall depot. Secretary, Trinity House, Ocean House, Great Tower-st., London, E.C.3.

MAY 26.

***Corporation of Trinity House.**—New buoy yard at Harwich depot. Secretary, Trinity House, Ocean House, Great Tower-st., E.C.3. Dep. £5.

GENERAL BUILDING WORK (LONDON)

Cheapside.—REBUILDING OF CHURCH.—Lawrence Edward King, F.R.I.B.A., 37, Gordon-sq., W.C.1, is the architect for proposed rebuilding of St. Mary-le-Bow.

Croydon.—FACTORY.—Twentieth Century Electronics, Ltd., Dunbar-st., S.E.27, propose erection of factory at King Henry's-dr.

Greenwich.—FLATS.—Boro' Engineer has prepared layout for 18 flats at Invicta-rd.

Kensington.—FLATS.—B.C. Housing and Town Planning Committee have approved plans submitted by Boro' Engineer for erection of eight flats at Cornwall-cres.

Kensington.—FLATS AND MAISONETTES.—Plans prepared by Boro' Engineer for proposed erection of eight flats and two maisonettes at Blenheim-cres. have received B.C. Housing and Town Planning Committee approval.

Lewisham North.—SITE EXTENSION.—L.C.C. Education Committee recommend the acquisition of site of 0.258 of an acre at Loampit Vale for additional site extension to St. Stephen's C.E. prim. sch.

New Cross.—X-RAY DEPT.—South-East Metropolitan Regional Hospital, 27, Queen Anne-st., W.1, propose erection of X-ray department at General Hospital, Avonley-rd.

Poplar.—County Primary School.—L.C.C. Education Committee recommend expenditure of £46,000 for the acquisition of a site of 3.37 acres at St. Leonard's-rd., for the proposed erection of a prim. sch. and a nursery sch.

Southwark.—Rebuilding Premises.—Frank Tyler & Co., Ltd., 107-111, Newington Butts, propose rebuilding premises.

Wembley.—Flats.—L. H. Fewster & Partners, LL/A.R.I.B.A., 22, Conduit-st., W.1, have prepared plans for 56 flats at Harrowdene.

Wembley.—Shop and Flats.—London Co-operative Society, Ltd., propose erection of shop with flats over at 221, East-la. Plans by firm's staff architects.

Wembley.—Factory.—Allnatt (London), Ltd., seek town planning approval for proposed factory at Manor Farm-rd., junction with Athlon-rd.

(PROVINCIAL)

Accrington.—J. Vickers & Sons, Ltd., Canal Foundry Church propose extensions to works.

Alnwick.—Reavell & Cahill, Lloyds Bank-chbrs., Alnwick, have been instructed to prepare plans for terrace houses and bungalows at Embleton; six houses at Glanton and development of the Longhoughton Village site.

Altrincham.—H. Hankinson, 3, The Downs, Altrincham, has prepared plans for 14 houses at De Quincey-rd., for H. T. Barnes & Sons, Ltd.

Ashton-under-Lyne.—B.C. approved plans for extensions at Arnfield Works, for J. & E. Arnfield, Ltd.; and extensions to factory at Grosvenor-st., for W. Dolan.

Ashton-under-Lyne.—Chief E., Western Command, proposes erection of soldiers' married quarters at Ladysmith Barracks.

Axminster.—U.D.C. S. has prepared layout for 46 dwellings at Fox Hill estate.

Bacup.—T.C. preparing plans for central garage and stores at Henrietta-st.

Bakewell.—R.D.C. to erect six houses at Ashford Village.

Basildon.—Darham Industries (London), Ltd., 31, Old Manor-la., S.E.16, propose erection of factory.

Berwick.—Scottish Oils and Shell Mex, Ltd., are to erect an oil depot at Tweedmouth.

Billingham-on-Tees.—Layout plans have been prepared for Northfield-rd. estate, for the Church Commissioners. Architects are Smith Gore & Co., Houndgate, Darlington.

Billingham-on-Tees.—S. W. Milburn & Partners, 9, Esplanade, Sunderland, have prepared amended plans for proposed shopping and civic centre at Roseberry-rd.

Bingham.—R.D.C. to erect 38 houses at Bingham site.

Birmingham.—T.C. propose erection of 12 flats at Aston Hall-rd., Aston. Architects are Harry W. Weedon & Partners, Birmingham.—Crouch, Butler & Savage, 67a, New-st., Birmingham, have prepared plans for additional classrooms at Tile Cross prim. and Kings Heath prim. schs., for E.C.

Blyth.—George F. Marshall, Burt-st., Blyth, propose conversion of building at Cowpen North Farm into hotel.

Blyth.—Marshall & Tweedy, architects, 36, Blackett-st., Newcastle-on-Tyne, have prepared plans for bakery.

Bolton.—Director of housing has prepared layout for 306 dwellings at Oldhams Farm estate.

Bootle.—B.C. to erect wash-house and slipper-baths at J.I.C. and Pine Tree site; and approved plan for development of land at Dunnings Bridge-rd., for industry.

Bradford.—Leeds Reg. Hospital Brd. to approve mortuary and post mortem block at St. Luke's Hospital, to cost £7,000.

Bristol.—Greater London Properties, Ltd., 22, Conduit-st., London, W.1, propose erection of three-storey building at Crow-la., Henbury.

Bromsgrove.—R.D.C. approved, in principle, erection of R.C. Church at Tanyard-la., Alvechurch; layouts for 54 houses at Hartle-la., Belbroughton; 13 bungalows at Shaw-la., Stoke Prior; eight at George-rd., Alvechurch; and propose 12 houses at Shaw-la., Stoke Prior, and eight at Latimer-cl., Alvechurch.

Bromsgrove.—U.D.C. seek approval to layout for 54 dwellings at Charford estate.

Broughton-in-Furness.—Adaptations and extensions to Special sch., for Lancs E.C. included in 1952/3 programme at est. cost of £11,000. Cty. A. is G. Noel Hill, Preston.

Carnforth.—U.D.C. to erect 50 houses at Highfield-and Kellett-rd. estate. Architects are Middleton & Jones, 1, Queen-st., Lancaster.

Cheltenham.—B.C. to negotiate with George Wimpey & Co., Ltd., for erection of about 120 No-Fines flats on a site west of village centre.

Chester.—L. O. G. Williams, The Gables, Elton, has prepared layout for further 20 houses at Dunham Hill for R.D.C.

Chester.—R.D.C. to erect six houses at Yates-rd., Thornton-le-Moors.

Chesterfield.—N.C.B. Housing Assn. to erect 1,400 houses on various sites.

Chesterfield.—The Brampton Brewery Co., Ltd., propose alterations to Terminus Hotel; conversion of existing farmhouse at 105, Highfield-rd., Newbold, as public-house.

Chorley.—T.C. propose 30 houses at Tootell-st. site, and 30 at Wellbank-la.

Clay Cross.—U.D.C. to prepare plans for 60 miners' houses.

Clun.—R.D.C. propose adaptation of huts at Worthenton Camp for housing.

Crewe.—Sparke & Stephens, Ltd., 105, Wood-la., Timperley, propose erection of 20 houses at McLaren-st. site.

Crompton.—U.D.C. propose extensions to public baths at Farrow-st., Shaw.

Cwmbran.—M.O.W. have granted £750,000 building licence to Guest Keen & Nettlefolds, Ltd., for the erection of a foundry to be used for the production of internal-combustion engine cylinder heads and cylinder block castings.

Darlington.—Boro' A., E. A. Tornbohm, has prepared plans for 46 houses at Springfield site, 54 at Haughton West, and 28 houses at Firth Moor.

Dudley.—B.C. propose 404 dwellings on various sites.

Dudley.—F. H. Gibbons, Boro' Surveyor, Council House, has prepared layout for 178 houses at Coseley and Dudley Wood.

Durham.—T.C. to erect 100 houses at Framwellgate Moor, and 18 at Church-st. Plans by City E., Town Hall, Durham.

Durham.—Durham Coal Board (No. 6 Area), Shotley Bridge, propose erection of maintenance shops at Tanfield Lea.

Durham.—T.C. propose conversion of 9, Church-st. into three flats to plans by City E., Town Hall.

Durham.—C.C. to carry out alterations to Wheatley Hill Ambulance Station. Cty. A. is G. R. Clayton, Court-la., Durham.

Gateshead.—Boro' Architect, Town Hall, has prepared plans for 400 houses

Gosforth.—U.D.C. S., Clifford Wyld, has prepared plans for 26 dwellings at South Gosforth Farm estate.

Harrogate.—Boro' Surveyor, Municipal Offices, has prepared layout for 64 houses at Grove House estate.

Hereford.—Scriven, Powell & James, AA.R.I.B.A., Cathedral-chbrs., King-st., Hereford, have prepared plans for alterations to Nelson Inn, West-st., for Cheltenham & Hereford Breweries, Ltd.

Hertfordshire.—O. Brewerton, County Architect, has prepared plans for schools at Barnet-la., Barnet, £219,880; L.C.C. estate, Boreham Wood, £157,735; Park-la., Waltham Cross, £54,340; Bevan estate, East Barnet, £51,550; and at Archers Way, Letchworth.

Hinckley.—Council's architect, Council Offices, Hinckley, Leics, has prepared plans for 40 houses.

Ilfracombe.—U.D.C. surveyor has prepared 24 flats at Slade Valley-rd.

Ince-in-Makerfield.—R. Lewis, U.D.C. surveyor, Town Hall, has prepared layout 120 dwellings at Battersby-st. site.

Irthlingborough.—U.D.C. to reserve site off Welford-ave. for erection of community centre.

Jarrow-on-Tyne.—The Northern General Transport Co., Ltd., Bensham, Gateshead, is being recommended to proceed with erection of bus station at Station-st., Jarrow.—T.C. has received sanction to erect 30 houses at Stanhope-rd., est. to cost £40,170.—About 20 acres of housing land, near Hedworth-la., is to be purchased by T.C.

Lancaster.—Manchester Reg. Hospital Brd. approved construction of emergency staircases at Lancaster Moor Hospital, £7,600 (est.).—J. Parkinson & Sons, Ltd., Parliament-st., propose to build 42 houses at Leyburn-rd.

Lancs.—E.C. propose two new schools at Chorley and first phases of colleges of further education at Widnes and Nelson, in 1952/3 programme.

Leamington Spa.—Boro' Engineer has prepared layout for 40 houses at Whitnash estate; six at Edinburgh-cres., Kingsway; and 22 at East Dene, Lillington estate.

Leicester.—Pike & Prince, architects, 1, West-st., have prepared plans for developments at General Hospital for Sheffield Regional Hospital Board.

Leicester.—J. S. Fyfe, housing architect, Municipal Offices, Charles-st., has prepared plans for 154 houses at Eyres Monsele estate.

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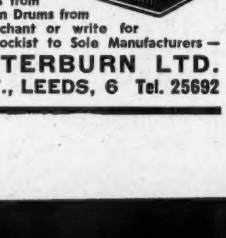

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Liverpool.—City Architect has prepared for 12-storey block of 112 flats at Sparrow Hall estate, Fazakerly.

Liverpool.—T.C. approved scheme for 30 flats and maisonettes at junction of Croxteth-rd. and Lodge-la.

Lytham St. Annes.—T.C. to approve erection of 36 houses at Kilnhouse-la. site.

Macclesfield.—R.D.C. propose further 12 houses at Prestbury.

Maghull.—M.O.W. propose erection of new telephone exchange.

Manchester.—E. E. Costello, architect, 325 Langworthy-rd., Salford, has prepared plans for new factory at Miles Platting for F. Sheldon.

Manchester.—T.C. propose new crematorium at Blackley, £80,000 (est.). L. C. Howitt, City A.—E.C. seek approval for inclusion of adaptations to Greystoke, West Didsbury, in 1952/53 programme, and Bates Bros., Ltd., Roundthorn, Wythenshawe, propose extensions to double size of new factory, £25,000 (est.).

Manchester.—Managers of The Jews' School propose Stage 11 of new sch. in 1952. Architects are Taylor & Young, Oxford-rd., Manchester.

Manchester.—Reg. Hospital Brd. to prepare working drawings for extensions to pathological laboratory at Baguley Sanatorium, £10,689 (est.).

Manchester.—T.C. approved plans for seven shops and maisonettes and seven lock-up garages at Road No. 10, Northern Moor neighbourhood, Northenden; 200 houses, 54 flats and 12 bungalows at Peel Hall-rd., Peel Hall estate, Northen Etchells; four houses at Road No. 5, and eight at Parkville-rd., Withington.

Middlesbrough.—T.C. has included proposed scheme for improvements to Cannon-st. Baths in 1952 estimates.

Newcastle.—N.C.B. Miners' Welfare Dept. propose to build canteens at Washington Glebe Pit, Watergate, Wearmouth and Hulton collieries in 1952. Plans by Architect's Staff, Gosforth, Newcastle.

Newcastle-on-Tyne.—City Architect, 18, Cloth Market, has prepared plans for occupational centre for mental defectives at City-rd.

Newcastle-on-Tyne.—Subject to Ministry approval, T.C. is to buy site at the Fossway, for new R.C. sec. sch.

Newcastle-on-Tyne.—C. A. Parsons & Co., Ltd., engineers, Shields-rd., Newcastle-on-Tyne, propose to build joiners' shop apprentices' sch., and compressor house. Plans by staff architect, J. Wharrier.

Newcastle-on-Tyne.—A site on the Montagu estate is to be sold to Parochial Church Council of All Saints' Church, Gosforth, for erection of church.

Newcastle-under-Lyme.—Montague Burton, Ltd., propose incorporation of premises at 3-5, New-st. into existing premises. Architect is N. Martin, Hudson-rd. Mills, Leeds.

Northampton.—Daily Milk Co., Spencer Bridge-rd., propose erection of milk processing and bottling plant at Heathfield Way, Dallington Fields.

Northampton.—F. H. Allen, A., 24, Albion-pl., Northampton, has prepared plans for new theatre at Creation Sanatorium, for Oxford Reg. Hospital Brd.

North Riding.—E.C. to convert premises at Topcliffe Aerodrome into cty. sch. Cty. Education A. is D. W. Dickenson, County Hall, Northallerton.

North Shields.—C. S. Errington, 46, Grainger-st., Newcastle, is the architect for alterations to Royal Arms public-house at Nile-st., for A. H. Higginbottom & Co., Ltd., Waterloo-st., Newcastle.

Northumberland.—E.C. is being recommended to spend £14,000 on additions to Alnwick sch.; £7,000 for two classroom unit at North Sunderland; and £7,000 for additions to Lowick sch. Cty. A. is C. C. Brown, County Hall, Newcastle-on-Tyne.

Northumberland.—Cty. Ed. Com. has acquired land at Walbottle for proposed sec. sch. Cty. A. is C. C. Brown, County Hall, Newcastle.

Nottingham.—Sheffield Reg. Hospital Brd., Fullwood Houses, Old Fullwood-rd., Sheffield, propose erection of X-ray dept. at Hospital for Women.

Oldham.—B.C. approved plans for alterations for new offices at Garland Mill, Bell-st., for J. & J. Maybank, Ltd.; and extensions to iron foundry at Castle Iron Works, Wrigley-st., for Buckley & Taylor, Ltd.

Orrell.—U.D.C. approved plans for 10 houses at Hayes-rd., for Nixon & Boardman, Ltd., Moor-rd., Orrell.

Plymouth.—City Architect has prepared plans for technical college building and engineering block.

Plymouth.—Marshalls (Boxes), Ltd., propose works extensions at Sutton-rd.

Radcliffe.—B.C. seek loan of £59,800 for 48 houses at Wordsworth-ave. site.

Ramsbottom.—U.D.C. propose 50 houses at Woodnill, Shuttleworth.

Risca.—U.D.C. Surveyor has prepared layout for 58 houses at Manor-rd. site.

Rochdale.—B.C. propose erection of additional houses at Ivor-st. estate.—B.C. approved plans for alterations to Talbot Hotel, 72, Baillie-st., for Higsons Brewery, Ltd.

Salford.—T.C. propose 10 houses at Ramsgate-st.; four at Gt. Cheetham-st.; four, Grecian-st.; six, Doveleys-rd.; 24, Cholmondeley-rd.; 24, Winchester-rd.; four, Orient-rd. and Lancaster-rd.; nine, Chandos-gr.; seven, Devonshire-rd.; five, Howard-st.; and six, Shawcross-st.

Salford.—T.C. Watch Com. propose four houses at The Polygon and four at Lower Broughton-rd.

Sandbach.—U.D.C. Surveyor, Council Offices, Crewe-rd., has prepared layout for 36 houses at site off Crewe-rd.

Seaton Burn.—Cty. A., County Hall, Newcastle, has prepared plans for central schools kitchen.

Southampton.—Stead & Simpson, Ltd., 12, Belgrave-gate, Leicester, propose erection of showrooms and offices.

South Shields.—T.C. propose acquiring Whiteleas Hospital for conversion for use by Welfare Com. Alterations will cost £8,000.

Sowerby Bridge.—U.D.C. seek approval to layout plans for 86 houses at Sowerby estate.

Stafford.—John Joule & Sons, Ltd., Stone, propose conversion of Moss Pit Lodge as an inn. Architect is P. G. Green.—Home Office propose large extensions to gaol in 1952/3 programme.

Staffordshire.—A. C. H. Stillman, Cty. A., County-bldgs., Martin-st., Stafford, has prepared plans for proposed new branch libraries at Brownhills, Wednesfield, Biddulph, Rugeley, Aldridge, Chase-ter. and Pelsall.

Stockton-on-Tees.—Alterations, including new fronts are to be made to Peters Army & Navy Stores, High-st. Architects are Stephenson & Gillis, Saville-chbrs., North-st., Newcastle-on-Tyne.

Stoke-on-Trent.—R. Scrivener & Son, architects, Howard-pl., Hanley, Stoke-on-Trent, have prepared plans for extensions to works for Twyfords, Ltd.

Stretford.—Revised layout of transport depot at Trafford Park-rd. for Road Haulage Executive has received divisional planning committee's approval.

Stretford.—T.C. propose erection of 24 flats at Chester-rd., Thomas-st. (Yapp's Laundry site); four houses, Mitford-st.; three bungalows, Harper-st.; two houses, Norton-st.; 10 houses at King's-rd., Warwick-rd. South; and 12 flats at Chester-rd.

Stretford.—M.O.H. & L.G. approved following houses in 1952:—22 at Moss Park-rd. (No. 2) site; 122, Stretford-rd. redevelopment; 24, Chester-rd. (Yappe Laundry site); and 30 on commencement of redevelopment of blitzed sites.

B.C. approved plans for alterations to offices at Textilose-rd., Trafford Park, for Textilose, Ltd.; extensions to canteen at Westinghouse-rd., for Metropolitan Vickers Co., Ltd.; extensions to offices and lavatories at Barton Dock-rd., for D. Anderson & Sons; rebuilding No. 5 stand at White City, Chester-rd., for White City (Manchester) Greyhound Racing Association, Ltd.; two new gasholders at Westinghouse-rd., for North-Western Gas Board; and works extensions at Talbot-rd., for Glacier Metal Co., Ltd. Architects, W. T. Gunson & Son, Manchester.

Sunderland.—T.C. to extend transport department's central depot at Wheatsheaf.

Swadlincote.—U.D.C. to prepare plans for 50 houses at Hartshorne.

Tipton.—Boro' A. to prepare estimates for 26 houses and 20 flats at Dudley-rd. portion of Park-la. West estate.

Todmorden.—B.C. propose 12 flats at The Shade site; and flats and traditional houses at Stansfield Mill site.

Tynemouth.—Boro' E. to prepare plans for eight shops at Marden East.

Urmston.—U.D.C. to build 32 houses at Nursery-rd., and has approved plans for storage building and turbine test plant at Barton Dock-rd., for Metropolitan Vickers Electrical Co., Ltd.; and three houses at Roseneath-rd., for Atherton & Williams, Ltd., King-st., Stretford.

Washington.—N.C.B. architects' dept., Ashfield Towers, Gosforth, Northumberland, have prepared plans for pithead baths at Glebe Colliery.

Watford.—Archard, Worror & Hardy, architects, 20, Lowndes-st., S.W.1, have prepared plans for R.C. sec. sch. at Garston.

West Riding.—C.C. propose erection of 42 new classrooms at various schools, £86,000 (est.). Cty. A. is H. Bennett; Wakefield.

Whitley Bay.—E. M. Lawson, Barras-bldgs., Newcastle-on-Tyne, is the architect for alterations and additions to Berkeleys Restaurant, Marine-ave.

Wigan.—R.D.C. approved reconstruction of Newburgh Mills, Parbold, for H. & R. Ainscough, Ltd.

Wisbech.—Metal Box Co., Ltd., The Langham, Portland-pl., London, W.1, propose erection of factory and offices at Weasenham-la.

Woking.—U.D.C. Surveyor, Council Offices, has prepared layout for 104 houses at Grove Barrs estate, Horsell.

Wolverhampton.—B.C. to build 62 houses at Tryall-rd.

Worsborough.—M.O.E. approved extensions to Worsborough Dale sec. sch. Plans by Cty. A., H. Bennett, Bishopgarth, Westfield-rd., Wakefield.

Worthing.—R.D.C. Surveyor, Mill-rd., has prepared layout for 52 houses at Sompting

TENDERS

* Denotes *accepted*.
† Denotes *provisionally accepted*.
‡ Denotes *recommended for acceptance*.
§ Denotes *accepted subject to modification*.
¶ Denotes *accepted by H.M. Government Departments*.

Ashton-under-Lyne.—Alterations to fire stn., for B.C.: *Dean & Whipp, Ltd., Hyde (in lieu of previous tender).

Bingham.—Eight houses, Cropwell Butler site, for R.D.C.: *E. Somerfield & Son, 18, Seymour-rd., West Bridgford, Notts, £12,751.

Birmingham.—Erection of Bertley Green sec. mod. mixed sch., for E.C.: *Thos. Lowe & Sons, Ltd., Grenville-bldgs., Cherry-st., £131,985.

Blaydon-on-Tyne.—Coal-handling plant for the power station at Stella South, Blaydon-on-Tyne: *Robert Dempster & Sons, Ltd., Elland, Yorks.

Blyth.—Depot for Ringtons Tea Co., Newcastle. Architects, Stephenson & Gillis, Saville-chbrs., North-st., Newcastle: *W. W. Kelsey, Back Hanover-sq., Newcastle.

Brighouse.—3 flats and 5 shops, Stoney-la. estate, for B.C.: *Rowland Lumb & Co., £11,224.

Cheadle.—Erection of maternity accommodation at Isolation Hospital: *Ball & Robinson, Trent Bridge, Stoke-on-Trent.

Chester.—Houses for R.D.C.:—Eight at Barrow: *Irby Estates, Ltd.; eight at Guilden Sutton: *A. F. Illidge & Son, Ltd., Hoole, £10,918.

Clackmannonshire.—Additions and extension to Dollar Academy, at est. cost of £50,000. Architects are T. Harold Hughes & Waugh, F., 206, Sauchiehall-st., Glasgow, W.C. Danskin & Furlie, FF.R.I.C.S., 241, West George-st., Glasgow, W.C.2, quantity surveyors: *James Grant & Son, Ltd., Alloa.

Couper Angus.—New houses for the Corporation. R. W. Love, architect, Council Offices, Couper, Angus: *J. B. Stewart & Sons, Ltd., Couper Angus.

Coventry.—Erection of new kitchen and dining-room at Coventry and Warwickshire Hospital: *Turriff Construction Co., Ltd., Leamington Spa.

Cuckfield.—20 dwellings, Bolney, for R.D.C. Plans by A. Hutchings, M.B.E., M.I.Mun.E., E. & S.: *Thomas White (Haywards Heath), Ltd., Franklynn-rd., Haywards Heath, £27,456.

Dewsbury.—24 houses at Staniciffe-rd., for T.C.: *S. Armitage & Sons, Ltd., 62, Town-st., Leeds.

Durham.—20 houses at Nevilles Cross, Durham. Architects, Stephenson & Gillis, Saville-chbrs., North-st., Newcastle: *H. E. Pitt, Leopold-st., Millfield, Sunderland.

Friern Barnet.—Erection of prim. sch. at Coppetts-rd.: *R. Hart & Sons, Ltd., 121, Victoria-st., London, S.W.1, £58,560.

Glasgow.—Erection of the St. Bernard jun. sen. sch., for the Corporation. John MacNab (F.), architect, 129, Bath-st., Glasgow, W.C.2: *The Tarmac Asphalting Co., Ltd., Glasgow, £22,338.

Glasgow.—Erection of new warehouse for the Scottish Grain Distilling Co., Ltd., Adelphia-st. Yates, Cook & Darbyshire, architects, 43, Great Marlborough-st., London, W.C.: *Robert Gilchrist & Son, Ltd., Calton, Glasgow.

Great Yarmouth.—Erection of Peterhouse jun. sch., Gorleston. F. Jackson (A.), 15, Regent-st. Quantities by Philip Pank & Partners, F.R.I.C.S.: *H. A. Holmes & Sons, Ltd., South Icehouse Hill, Gorleston, £60,453.

Halesowen.—10 houses at Howley Grange estate, for B.C.: *F. Hildesley & Sons, Ltd., Olive-la., Blackheath, Birmingham.

Inverness-shire.—New scheme of dams at Glen Morrison, for the North of Scotland Hydro-Electricity Board. Consultant engineers, Sir William Halcrow & Partners, and Kennedy & Denkin, 12, Caxton-st., London, S.W.: *The Mitchell Construction Co., Ltd., Peterborough, Northants.

Lambeth.—104 dwellings at Solon New-rd.: *Rush & Tompkins, 109, Station-rd., Sidcup.

Loftus.—82 houses on Mars Farm estate, for U.D.C. Architect, C. D. Taylor, L.R.I.B.A., 41, Baxtergate, Whitby. Works is being shared by: *J. McCreton, Ltd., North Ormesby, Middlesbrough; *F. J. Willis, Hinderwell; *R. E. Cryer, Saltburn; E. Harker & Son, Brotton; *D. Theaker & Co., Ltd., Staithes; *G. Hebditch, Loftus; and *Morrison Bros., Loftus.

¶**London (Admiralty).**—Particulars of contracts placed by Civil Engineer-in-Chief's Dept., Admiralty:—

Sheerness: Test piling, John Mowlem & Co., Ltd., 91, Ebury Bridge-rd., London, S.W.1; adaptation of buildings, E, Bishop & Sons, Ltd., 19, Albany-rd., Sittingbourne, Kent.

¶**London L.C.C.**—The undermentioned contracts exceeding £2,500 in value have been placed by the L.C.C. during the period March 21 to April 1:—

Erection of new gate lodge at Grafham Grange sch., Bramley, Surrey, Hoad & Taylor, Ltd.

Painting and cleaning following schools:—Berger sch., Hackney, J. & J. Dean, Ltd.; Dog Kennell Hill sch., Camberwell, E. Tyler & Son; Halford sch., Fulham, George Jones & Sons (Contractors), Ltd.; Addison sch., Hammersmith, George Jones & Sons (Contractors), Ltd.; Kenmont and College Park schs., Hammersmith, Walker-Symondson, Ltd.; Ellerslie, Old Oak and N. Hammersmith sec. boys' sch., Painting & Maintenance Contractors, Ltd.; Sunnyhill sch., Wandsworth, A. Roberts & Co., Ltd.; Royal Hill sch., Greenwich, and Turnham and Chelwood schs., Lewisham, J. Scott-Fenn, Ltd.; York Way sch., Islington, J. Scott-Fenn, Ltd.; Hitherfield sch., Wandsworth, Deeds (Builders), Ltd.; Henry Cavendish sch., Wandsworth, C. Crook & Sons, Ltd.; Hargrave Park sch., Islington, Kingstons (Contractors), Ltd.; Fordway sch., Poplar, S. C. Grover, Ltd.; Falconbrook sch., Battersea, Orchard & Rear (London), Ltd.

Adaptation of Reveille House, Back Hill, Holborn, for London School of Printing and Graphic Arts, Thomas & Edge, Ltd.; repairs and redecorations at Carlton cty. prim. sch., St. Pancras, W. H. Cooper & Sons, Ltd.; construction of five blocks of flats and maisonettes and other work at Devons estate, Poplar, Tersons, Ltd.; erection of prefabricated dining-hut at Sacred Heart R.C. sch., Battersea, John Harrison (London), Ltd.; erection of prefabricated dining-hut at St. Francis' R.C. sch., Peckham, W. T. Champion & Son, Ltd.; reinstatement of allotment sites and adjoining areas for park use, The En-Tout-Cas Co., Ltd.

¶**London (M.O.W.).**—Contracts placed by M.O.W. for week ended March 29:—

London: Holloway Prison, Two flats, William Willett, Ltd., Sloane-sq., S.W.1. *Cheshire*: Little Sutton, Houses, James Crosby & Sons, Ltd., Carr Wood, Hall, Ches. *Durham*: N.A.B. 98, Newbottle-st., Houghton-le-Spring, Co. Durham, Alterations, R. Matthews & Co., 25, Villiers-st., Sunderland, Co. Durham. *Fifeshire (Scotland)*: Inverkeithing and Cupar, Telephone repeater station, John Carnegil & Son, Ltd., 35, Seafield-rd., Dundee. *Gloucestershire*: Pilning, Bristol, Telephone repeater station, John Perkins & Sons Ltd., St. Marks-rd., Bristol. *Lancashire*: P.O. Eng. Stores, Deepdale Mill-st., Preston, Erection, John Turner & Sons (Preston), Ltd., William Henry-st., Preston. *Som*: 1-7, Pulteney-st., Bath, Int. ext. plainting, A. Wills & Sons, Ltd., 15, Argyle-st., Bath.

¶**London (War Dept.).**—Works contracts placed by W.D. during week ended March 29:—

Lancashire: Concrete work, W. A. Gale, Ltd., Liverpool. *Wiltshire*: Hutting (demolition), Chas. Griffiths, Ltd., London, E.6; Roadwork, Roads Construction (1934), Ltd., Frome. *Yorkshire*: Miscellaneous, W. & J. Glossop, Ltd., York: Painting and decorating, W. T. Pickering & Sons, Ltd., Stockton-on-Tees: Miscellaneous, Wade Construction Co., Ltd., Wath-on-Dearne.

Durham.—Miscellaneous, Ernest Black & Sons, Ltd., Darlington. *Northamptonshire*: Roadwork, W. & J. Glossop, Ltd., York. *Northumberland*: Building work, Haverys (Contractors), Newcastle-on-Tyne. *Kent*: Concrete work, Wm. Dunk & Co., Ltd., Dover.

Longridge.—30 houses, St. Wilfreds site, for U.D.C.: *Pius A. Baines, Ltd., Paley-rd., Preston.

Manchester.—294 flats and houses, Peel-st. (contract 160), for T.C.: *Direct Labour.

Mansfield.—Erection of administration block at Portland Training College: *Ford & Weston, Ltd., Osmaston-rd., Derby.

Newcastle-on-Tyne.—Eight houses and two flats on Montagu estate, for City Council: *G. Bailey, Ltd., King-st., South Shields, £12,129.

Newcastle-on-Tyne.—Alterations and additions to offices, Pilgrim-st., for Newcastle & Gateshead Water Co., Ltd.: *John Jackson & Sons, Corporation-st., Newcastle-on-Tyne.

Newcastle-on-Tyne.—Erection of mineral water factory for Fentiman's Direct Supply Co.: *J. G. Cowe, Central-chbrs., Chester-le-Street, Durham.

Northumberland.—Erection of Newburn West Denton cty. prim. sch., for E.C. Cty. A., C. C. Brown, County Hall, Newcastle-on-Tyne: *Thomas Curry & Son, Ltd., Meldon-st., Newcastle-on-Tyne, £89,993.

Nuneaton.—27 flats, Mount-st., for T.C.: *Morriss & Jacombs, Ltd., 71, Hobmoor-rd., Small Heath, Birmingham, £28,600.

Oldham.—Carpenters' and joiners' work at Fitton Hill jun. sch., for E.C.: *A. Hoggins, Ltd., Oldham (in lieu of previous tender). New classroom at Hathershaw inf. sch.: *Whitworth Whittaker & Co., Ltd., Oldham.

Oldham.—Erection of new C. of E. Church, Limeside estate, at an est. cost of £10,080: *R. Partington, Ltd., Lodge-st., Middleton.

Penrith.—Improvements to Penrith Cottage Hospital. Architect, A. Knewstubb, St. Andrew's-chbrs., Penrith: *Airey & Lewis, Penrith.

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Reading.—New depot for the Corporation, Water Dept., Berkeley-ave.: *Francis Bros. (Builders), Ltd., 11, Armour-rd., Tilehurst, Reading, £50,715.

Reading.—40 houses at Bath-rd.: *R. J. Haddock, Ltd., Kidmore End-rd.

Renfrew.—34 houses on the North Lodge housing site, for the Corporation. Archibald Allan, A., Municiple-chbrs., The Cross, Renfrew: *A. Mitchell & Son, Ltd., The Candleriggs, Alloa, Clackmannonshire.

Rugby.—24 houses at Brinklow, for R.D.C., at an est. cost of £38,000: *E. K. Youell & Son, Ltd., 503, Walsgrave-rd., Coventry.

Scarborough.—Houses at Eastfield, for T.C.: *E. Hunter, Ltd., Beaconsfield-st., Scarborough (34); and *Mollekin Bros., West Parade-rd., Scarborough (36).

Scottish Special Housing Association, Ltd.—Contracts placed between February 18 to March 18:—

House Erection

Hayshead, Arbroath, 60 Dunedin, Scottish Gas Board, Arbroath, gas services. Campbeltown, Argyll, 4 trad., Scottish Gas Board, Campbeltown, gas services. Fergushill-rd., Kilwinning, 76 Weir, Scottish Gas Board, Kilwinning, gas services; Bendarroch, Dumbartonshire, 72 Lawrence, S.W. Scotland Elec. Board, Clyde Sub-Area, 206, St. Vincent-st., Glasgow, electricity services. Sighthill, Edinburgh, 6 Low-cost, 2 Miller, Northern Sports Ground Construction Co., Edinburgh, stob and wire fencing. Stanley-rd., Ardrossan, 56 Dunedin, Scottish Gas Board, Ardrossan, gas services. Pulpit Rock, Oban, 20 trad., Barnet & Morton, Ltd., High-st., Kirkcaldy, boundary fencing. Paris-ave., Denny, 96 timber and Miller, S.E. Scotland Elect. Board, Central Sub-Area, Stirling, electrical services. Grieve-rd., Greenock, 76 Atholl, Scottish Gas Board, Greenock, gas services.

Site Servicing

Calton, Campbeltown, 100 Cruden, S.S.H.A. Direct Labour Organisation. Bendarroch, Dunbartonshire, 72 Lawrence, S.S.H.A. Direct Labour Organisation.

Maintenance

Somerset-ave., Hamilton, 6 trad., John McLaren, 13-17, Main-st., Hamilton, external paint. Drumpellier-ave., Coatbridge, 10 trad., Jas. R. Renwick, 7, Gartsherrie-rd., Coatbridge, external painting. Methilhill, Buckhaven, 50 B.I.S.F., Neil Nicholson & Co., 12, Whytehouse-ave., Kirkcaldy, paint.

Sedgley.—30 houses at Firs & Quarries site, for U.D.C.: *Tomlinson Bros. (Sedgley), Ltd., Wolverhampton-rd.

Sedgley.—28 flats, Modenhill housing site, for U.D.C. *Wm. Whittingham, Ltd., Powlett-st., Wolverhampton, £29,161.

South Shields.—124 houses, Auckland-ave., for T.C. John Reid, Bero' E.: *William Leech, Ltd., Clayton-st., Newcastle-on-Tyne, £152,890 (in lieu of previous contractor)

Stalybridge.—32 houses at St. George's estate, for B.C.: *Martin & Shepley, Ltd., 150, Victoria-st., Newton, Hyde, £48,006.

Sunderland.—72 houses on Vicarage Farm site, Silksworth, and six on Beckwith site at Middle Herrington, for R.D.C. C. Emmerson, S.: *Direct Labour.

Swindon.—78 houses at Langney Village scheme, for T.C.:—

Martin & Saunders, Ltd.	£104,984
J. G. Robinson & Sons, Ltd.	102,786
Y. J. Lovell & Sons, Ltd.	100,632
Walter Llewellyn & Sons, Ltd.	99,842
Ringmer Building Works, Ltd.	96,596
*Building and Public Works Construction, Ltd.	90,274

Tavistock.—22 houses at Greenlands estate, for U.D.C. Rossington and Fogden, architects, National Provincial Bank-chbrs. ;C. Doidge & Son, Ltd., Drake-rd., Tavistock, £26,771.

Tettenhall.—Rebuilding St. Michael and All Angels' Church for Parochial Church Council. Plans by B. A. Miller, F.R.I.B.A., architect to the dean and chapter of Chester Cathedral: *Henry Willcock & Co., Ltd., Wolverhampton, £79,853.

Tynemouth.—Three old people's hostels at Marden, for T.C.: *J. H. Rogers, Regent-ter., North Shields.

Tynemouth.—Six terrace houses on bombed site in Stanley-st. West, North Shields. Architects, Haswell & Son, Tyne-st., North Shields: *H. P. Woodall & Co., Ltd., Wansbeck-av., Whitley Bay.

Wakefield.—10 blocks of Gregory flats, Kettlethorpe estate, for T.C.: *W. Dunk, Ltd., Peel-st., Barnsley.

Wallasey.—Six houses at site P9, for B.C.: *W. F. Farrell, Ltd., South Bank, Runcorn, £9,252.

Whitehaven.—Conversion of "Ingwell House" as a special school, for E.C.: *Trollope & Colls, Ltd., Windscale Works, Calderbridge, Cumberland.

Whitley Bay.—12 houses at Hazeldene: *R. A. Crofton & Sons, Monkseaton.

Wordsley.—Building work at hospital: *A. H. Guest, Ltd., Coalbourne Brook, Stourbridge.

Workington.—New chest clinic at the Infirmary, for Reg. Hospital Brd.: *J. Twiname, Ltd., Brigham, £9,256.

Worthing.—36 houses at Strand-rd.: *Field Place (Builders), Ltd., 132, Goring-rd.

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